RAILROAD GAZETTE

SATURDAY, OCTOBER 31, 1874.

Improved Smoke-Stack.

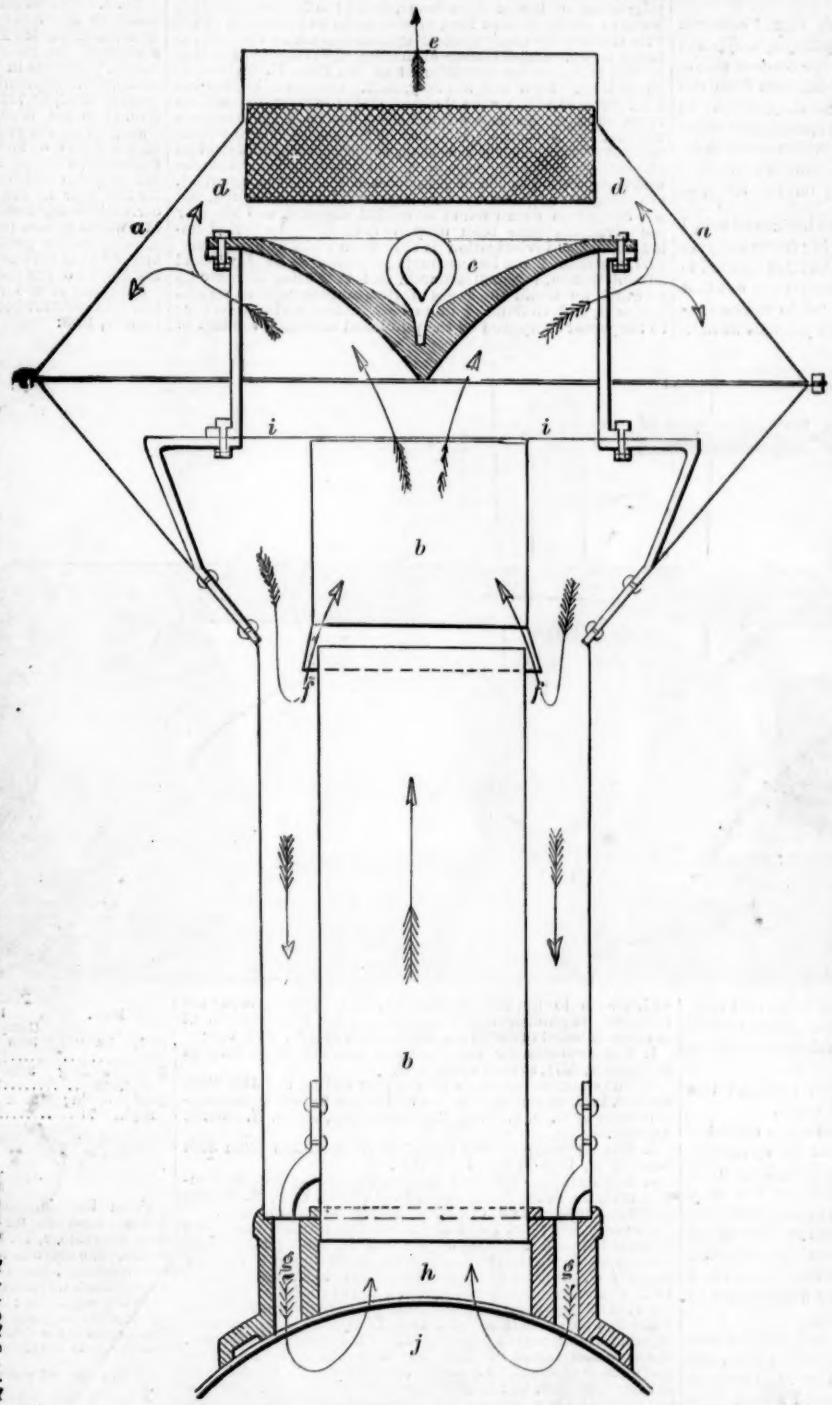
We give herewith an engraving of a smoke-stack, the invention of Messrs Anthony Ross and James McIntosh, of Memphis, Tenn. It is intended, like all similar inventions, to diminish the quantity of sparks discharged from the top of the stack, and it is designed to be used either for wood or coal-burning engines.

The drawing represents a vertical section through the center of the smoke-stack. *a a* is the outside shell of the smoke-stack; *b* is the inside pipe leading upward from the smoke-box; *c* is the deflecting cone against which the current of sparks strikes, which is thereby deflected outward, as indicated by the darts, the lighter ones escaping from the top of the stack and the heavier ones falling downward between the inside and outside pipes. Part of the sparks which pass downward are again drawn into the pipe *b* through the annular opening *f f*, and are again drawn against the cone *c* and then in the direction before indicated. The heaviest sparks, or those which fall to the bottom of the space between the inside and the outside pipes fall through the openings *g g*, into the smoke-box, and thence are drawn upward again through the pipe *b* to the deflecting cone. In this way the sparks are continually moved up and down until they are broken up into fine dust and then pass through the annular netting *d d*, and finally into the open air from the top of the stack.

The arrows indicate the action of the sparks. They are first carried up through the main tube *b* against the cone *c*, which deflects them and causes them to be thrown against the inclined walls of the cap *a*, and thence they fall down into the annular space *m*, the lighter particles being taken up by suction through the annular space *f*, while the heavier particles fall down through the tubes *g*, and are thence again carried up through the main tube.

The inventor writes us: "Our switching engines (Memphis & Charleston Railroad) are using this stack in the Memphis yard among thousands of cotton bales. In the darkest night no sparks can be seen. I have been using it for the last twelve months on passenger, freight and switching engines, and no sparks are thrown out of the stack excepting in the form of fine dust. On opening the front of the smoke-box it is found to be entirely clean."

Persons wishing further information can communicate with Mr. Anthony Ross, Master Mechanic Memphis & Charleston Railroad, Memphis, Tenn.



ROSS & McINTOSH'S IMPROVED SMOKE-STACK.

Vermont Railroad Legislation.

A correspondent of the New York *Times*, writing from Montpelier, on the opening of the Vermont Legislature, says: "The bill to abolish passes on railroads and steamboat lines, which the Legislature passed at the close of the session of 1866, only to repeal it at the commencement of the session of 1867, is now before the Senate, with little hopes of passing, notwithstanding the strong push that will be made for it by its author (Col. Clarke, of St. Albans). The bill authorizing the formation of the "Central Railroad Company of Vermont," the intent and purpose of which is to take the road out of the hands of the "Central Vermont Railroad Company," over whose destinies Ex-Govs. Smith and Page preside, and to place it in the hands of a new party, (representing other and antagonistic interests,) known as the "Bradley-Barlow party," has been simultaneously introduced into both branches, but it is too early to predict its fate. A bill to tax railroad property has been introduced into the House, and one to prevent discrimination in freights into the Senate. The celebrated Wisconsin "Potter bill" to establish rates of freight and fares is understood to be in the hands of its friends, and only awaits a vote upon some kindred bill to determine the sentiment of the Assembly, when it will be introduced if there is a prospect that it may pass.

"The Delaware & Hudson Canal Company and the Slate Producers' Association of Western Vermont, which is represented here by an able and experienced legislator who was elected solely upon the railroad issue, have been holding consultations, and seem to be making an earnest effort to arrange their troubles without bringing them before the Legislature, and it is the earnest wish of all good men that they may succeed; for while there is now a conservative element in the Legislature that will act without rashness, and will endeavor to do justice to both the railroads and the people, any manifest grievance such as is claimed to exist in the case of the Delaware & Hudson Canal Company, might and probably would, engender a bitterness and hostility that would result in a positive injustice to the railroad interests in Vermont. Many of these require the most kindly legislation and fostering care to enable them to carry out many projects much needed by the agricultural interests of the State."

Contributions.

Fire-Alarm Telegraphs on Railroads.

ST. PAUL, Minn., October 6, 1874.

TO THE EDITOR OF THE RAILROAD GAZETTE:

You will notice from the inclosed circular that the Central Pacific Railroad has adopted the fire-alarm telegraph in the snow sheds of the company over the Sierra Nevada Mountains, which strikes me as a wise precaution and worthy of imitation under similar circumstances. The idea (so far as I know) is a new one, and perhaps a publication of the circular might lead to its useful employment for the protection of bridges and wood-piles on other roads. Thousands of dollars might have been saved last fall and spring, on roads in this section, if a small gang of men could have been dispatched to the burning wood piles before the fire reached a point beyond control. Fires in the great woods of this region travel fast, and assume immense proportions in a very short time, so that a single watchman at a wood-pile is almost powerless to avert the flames, and he must wait for some approaching train, which may not be due for several hours, or walk to the nearest station, before he can give the alarm. The fire alarm would (it seems to me) in such cases be a useful and economical thing.

[The following is the circular of Mr. A. N. Towne, General Superintendent of the Central Pacific, to which our correspondent refers above. It was issued Sept. 1:]

NOTICE TO EMPLOYES.

"For a more thorough protection against fire in the snow sheds and galleries between Blue Canon and Truckee, the company has introduced the fire-alarm telegraph system for use in connection with the fire trains at Blue Canon, Emigrant Gap, Summit and Truckee, at which places large electrical gongs are located. There are also 26 signal stations or boxes, varying in distance and placed in convenient situations, according to local circumstances. The locations of the boxes are indicated by small sign boards marked 'Signal Box.' *The following rules and regulations must be strictly observed by all:*

"Agents, train men and track men must be provided with switch keys (which will unlock the boxes) and, upon the discovery of a fire in the snow sheds, galleries, bridges or buildings, unlock the signal box, *pull down the hook*, let go *and* then *listen*. If you hear a little bell strike inside the box, you may be sure the alarm has been correctly sent in. Should you fail to hear the bell strike, go to the next nearest box and try that. Should you again fail to hear the bell, proceed with dispatch to the nearest telegraph office and give the alarm.

"If, on approaching a box, you hear the little bell strike, you may know that the alarm is being sent from some other box, and no action on your part is necessary. Pulling down the hook in one of the boxes will sound the signal on the large gong at the fire stations, and will also sound the little bell in all the other stations or boxes.

"Each signal box, on being started, will give its number four times—a pause intervening between each repetition. These signals are announced through a repeater on the Morse Telegraph Circuit by a repetition of the word 'Fire,' each time that it appears, being counted in the same manner as the blows on the gong.

"The signals as received on the gongs will be counted as follows, viz., from box No. 3, three consecutive blows, one, two, three; box No. 12, one blow, pause, then two blows in succession; box No. 23, two blows, pause, then three blows in succession; and so on, the pause being a space of time equal to three blows in succession. Nos. 1, 10, 11, 20, 22 and 30 are omitted.

"Agents at Blue Canon, Emigrant Gap, Summit and Truckee are required to see that the gongs at their respective stations are kept properly wound up, and at all times in readiness for the reception of an alarm.

"TESTING SIGNAL.—One blow will be struck upon each gong in the system immediately after "taking the time" at 12 o'clock, noon. Those in charge of fire stations will promptly report any failure to receive the signal. When received, it signifies *all in working order*. At any other time, or on hearing the irregular striking of the gongs, it signifies that it may be occasioned by atmospheric electricity, defective or broken wires, or some other cause requiring the attention of the foreman of telegraph repairs having the fire-alarm system in charge.

"CAUTION.—Avoid all tampering with the gongs or boxes; avoid, if possible, giving signals for a fire seen at such a distance as to leave any uncertainty as to its location.

"Those in charge of fire trains should approach the station or box from which the alarm is sent with great caution, keeping full control of the train on the grade.

"When the signal from the fire-alarm circuit is turned upon the division wire through the repeater, all operators on the division wire will immediately close their keys and await orders from the Train Dispatcher at Sacramento. Should he fail to hear the alarm, and there should be no response from that office, then the operator on duty at either of the fire-stations will call "H" office (Sacramento) on one of the other wires, using signal No. 9."

Then follows a list of fire-alarm boxes or stations, with their locations.

In this connection the following account of the "fire trains" on the Central Pacific, given by a California paper, will be found interesting:

"The Central Pacific Railroad Company employ no less than four fire trains on the mountain route across the Sierra. The first is stationed at Blue Canon, the second at Emigrant Gap, third at the Summit, and the fourth at Truckee. Each train consists of a locomotive and three or four water cars. These cars are about the same length as an ordinary freight car, and formed of two-inch plank; they are very strongly put together, as nearly water-tight as possible, and are elevated above the track about four feet. Each car will hold 3,000 gallons of water, or not far from 100 barrels—equal in weight to 24,000 pounds. The locomotives are arranged with powerful pumps that throw a steady stream, and do equally as good work as the best steam fire engines used in any of the large cities. Leather hose three inches in diameter is used, which, when not in use, is wound upon a large reel mounted on one car of each train. These trains are kept in constant readiness to proceed with all possible speed to the locality of the fire upon the first alarm. All of the 25 miles of shedding between Emigrant Gap and Truckee is thoroughly deluged with water once a week. In sprinkling the sheds the pipeman stands on the pilot in front of the engine, which moves slowly along at the rate of two miles an hour. In this work five men are sufficient to manage a train. Since the introduction of the fire-alarm telegraph, with 38 different stations between Emigrant Gap and Truckee, the danger of any very disastrous conflagration in the sheds is nearly or quite obviated."

Experiments on the Friction of Car Journals.

TO THE EDITOR OF THE RAILROAD GAZETTE:

In endeavoring to solve the much-vexed question of the relative frictional resistance of large and small axle journals for my own satisfaction, I devised an inexpensive machine which I thought would accomplish the desired result and obviate the necessity of costly and protracted trials. I send you herewith an outline elevation of the machine, and will also attempt a description of it as briefly as possible.

It consists of a stout wooden frame of the width of a car truck and framed somewhat like one. Upon the side sills near one end I placed two truck jaws or pedestals inverted, each jaw moving an oil box and journal brass with the working side on top as usual.

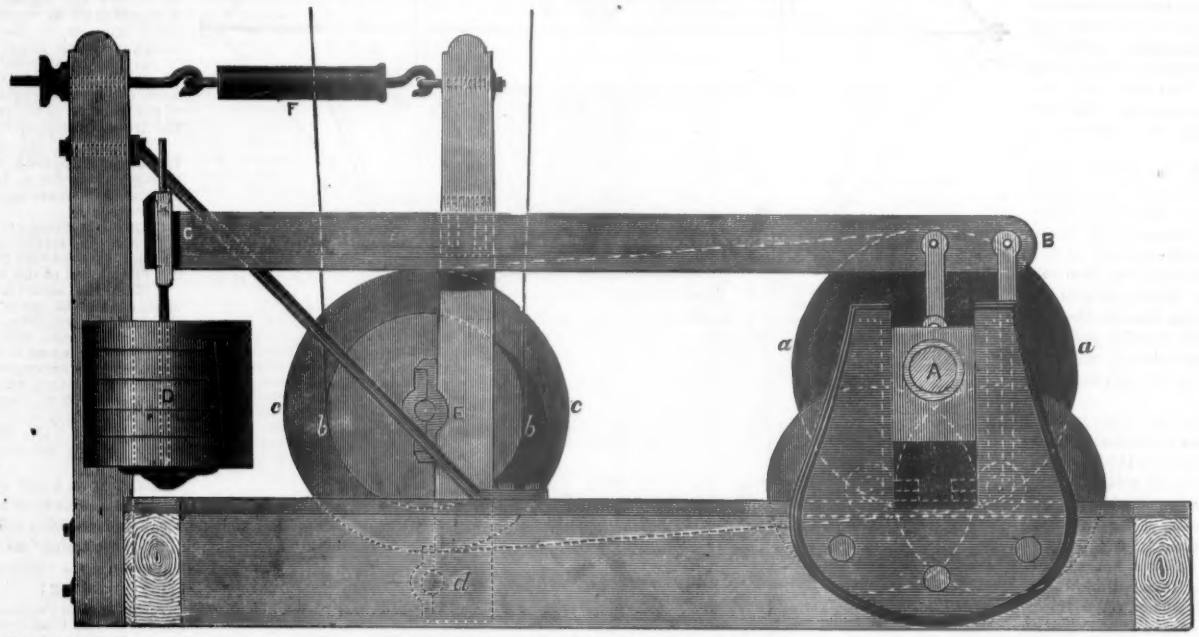
A car axle with 3¾x7 inch journals was placed

in these boxes with the wheel fit, as it is generally called, resting on two friction pulleys 15 inches in diameter, placed as near as possible to each oil box and receiving the weight of axle and load in lieu of the ordinary car wheel. These friction pulleys rested in babbitted boxes supported by sticks running parellel to the axle beams and had journals 2⅛x4⅛ inches. To obtain the necessary weight upon the bearings—corresponding to the weight of a passenger car upon one axle—I arranged two iron levers or steelyards five feet long so that one end of each was secured to one side of each jaw and at a distance of five inches a fulcrum depended and rested on the centre of each oil box. Upon the other end of these levers, four ninety pound weights were suspended, making the pressure of 5,150 pounds upon each bearing.

A wooden-lagged pulley was clamped on the center of the axle; and at a distance of three feet horizontally I placed a stout vertical wooden frame, hinged at the bottom to the main frame, and carrying a counter shaft placed at the same height as the axle above the frame.

This counter shaft carried a twenty-inch turned cast-iron pulley, at its centre connected to the axle pulley by a 3¼-inch leather belt; and also two 14-inch pulleys, one on each side of the center pulley, which received two 3-inch belts from two 21-inch pulleys on the main-line shaft of the shop, which was directly overhead of the counter shaft. The speed of the main-line shaft was 250 revolutions per minute, which would make the speed of the axle 270 revolutions, equivalent to a speed, if mounted with 33-inch wheels and running on the track, of thirty-six miles per hour.

In order to maintain a tension upon the horizontal belt, I connected by two spring balances the swinging frame carrying the counter shaft to two stout wooden standards secured to the end timbers of the main frame. My expectation was that by means of these balances I would be enabled to measure accurately the frictional resistance of the axle journals as indicated by the amount of belt tension necessary to prevent slippage of the belt; and by replacing the 3¾-inch axle by one of smaller or larger dimensions, the relative resistance would be determined.



But just here I met with an obstacle which rendered this plan ineffectual in producing the anticipated result.

At a speed of 370 revolutions of the axle and with a weight of 10,300 pounds upon both bearings, I slackened by spring balances until there was barely a strain of *ten pounds* upon the counter shaft, and consequently the belt carrying the axle. If the speed of the main-line shaft decreased to any considerable extent the axle would stop suddenly and the belt fly off, unless the strain was suddenly increased upon the balances. Puzzled by this unexpected failure of my testing apparatus, I determined to ascertain the amount of power which would be required to move the axle at a very slow speed.

I took a piece of belting fifteen feet long and secured one end by screws to the wooden lagging of the axle pulley, and wound the belt upon the pulley. To the other end I secured four spring balances side by side, and fastened a rope by a clamp to the other end of the balances, and attached the other end of the rope to a windlass placed about 35 feet from the axle frame. I placed a smooth board under the balances and belt, to prevent any strain from the sag of the belt, etc., and utilized a careful Tenton for my motive power. At a very slow speed the balances indicated a resistance of from 230 to 200 pounds whenever I could get a steady motion, as there was a tendency of the axle to move by "jerks"—if I may use the expression—occasioning a great variation in the tension of the balances. When the speed was increased to forty-three feet to the minute, the tension fell to 120 and 100 pounds, when the "yield" of the axle was steady.

I resumed my previous experiment by driving the axle from the main shaft, but placed two very small pulleys upon it and two large ones upon the counter shaft, so as to secure an axle speed of 48 revolutions or 250 feet per minute of the pulley.

The tension required on the belt was now 66 pounds, equivalent, probably, to a power exerted on the circumference of the pulley of 28 pounds. I then decreased the speed of the engine by regular intervals with the following result:

At 28 revolutions of the axle the tension was 110 lbs.; at 20 revolutions of the axle the tension was 120 lbs.; at 16 revolutions of the axle the tension was 160 lbs., and at 11 revolutions of the axle the tension was 220 lbs.

In this last case we have a pulley speed of 57 feet per minute and the power exerted at the circumference of the pulley may be estimated as 90 pounds.

Here my experiments ceased for the time, but I had learned enough from them to reject the generally received notion that friction is unaffected by velocity; but on the other hand I am induced to believe that the friction of heavily weighted journals must diminish as the velocity increases, unless you, Mr. Editor, or some of your correspondents, can explain the matter satisfactorily and reconcile the facts I have given with the accepted theory.

P.

The Erie Railway.—The Report of the London Accountants.

LONDON, Oct. 6, 1874.

GENTLEMEN: We have the honor to submit the following report of the results of investigation, which, in pursuance of your letter of instructions to us, dated the 29th of April last, we have made at New York of the books and accounts of the Erie Railway Company since reorganization under its then existing board. The existence of that board dates from the 11th March, 1872, and the appointment of Mr. Peter H. Watson to be president from the 9th July, 1872. Our investigation has been directed to the special object stated in your instructions to us, namely, "To inform the English bond and share holders whether the accounts published by the company are correct and have been properly kept since the present administration entered upon the management, and whether the expenses which, according to sound principles of railway management, are chargeable against the earnings have been so debited, and not carried to construction or capital account, and whether the dividends have been properly earned." The period embraced by our investigation is that from the 30th September, 1871, the date of the last accounts published by the Jay Gould administration, to the 31st March, 1874, that being the date up to which we found the books of the company written up and balanced, and containing important matter having reference to the period comprised by the published accounts, the last of which were to the 30th September, 1873. The following are the accounts published by the company since the appointment of the new board of directors, on the 11th March, 1872, viz.:

1. The accounts for the period of nine months, from 30th September, 1871, to 30th June, 1872.

2. The statutory accounts for the year ending the 30th September, 1872, as required by law and sworn to as approximately correct by H. D. V. Pratt, Superintendent, and S. H. Dunan, Auditor.

3. The accounts for the period of nine months from 30th September, 1872, to 30th June, 1873.

4. The statutory accounts for the year ending 30th September, 1873, the same being sworn to as correct by S. H. Dunan, General Auditor and J. C. Clarke, Acting Superintendent.

The accounts (Nos. 1 and 2) include the transactions of the interval between the date of the last accounts published by the Jay Gould administration and the appointment of the new board, *i. e.*, from the 30th September, 1871, to the 11th March, 1872. The statutory accounts (Nos. 2 and 4) comprise together a period of two years, and the other published accounts (Nos. 1 and 3) a period of 18 months, such 18 months being included in, and forming part of the two years of the statutory accounts. We have ascertained the foregoing accounts to be incorrect; and we now proceed to describe the inaccuracies disclosed by our investigation, and to show the effect of their correction on the profit and loss account and balance sheet of the company, as on the 30th September, 1873.

No. 1.—These accounts, which accompanied the report to the shareholders, dated 9th July, 1872, signed by John A. Dix as President, were, as stated in such report, made up partly of estimated results, and their subject-matter being comprised in the statutory accounts for the year ending 30th September, 1872 (No. 2), we offer no further remarks upon them.

No. 2.—The accounts No. 2 include a profit and loss account for the "fiscal year," ending the 30th September, 1872, exhibiting a credit balance of $2,816,768

Which is composed as follows:

By balance of account, 30th September, 1871		$1 683,507
By net earnings for the 12 months	$5,644 464	
Less interest, rents and other deductions... ...	3,913,621	
		1,730,843
		$3,414,351
Deduct dividends, Nos. 11 and 12, on preferred stock to 30th June, 1872.....		597,583
		$2,816,768

Our examination of this statement results in showing that instead of a credit balance of $1,683,507.94 existing on the 30th September, 1871, there was in fact a deficit of $456,-444.78, and as to the alleged profit of the year, stated at $1,-730,843.81 that it did not in point of fact exceed the sum of $1,021,347.30; the difference of error as to the balance of 30th September, 1871, being..... $2,139,952
and as to the profit of the year..... 709,496
$2,849,449

Leaving the balance at debit of the profit and loss account on the 30th September, 1872, at the sum of..... 32,681

Instead of a credit balance of..... $2,816,768

exclusive of any loss that may arise on the realization of the book debts and securities which then were and may be still outstanding. A comparative profit and loss account to the 30th September, 1872, is given in the appendix marked A, showing, in juxtaposition, the figures of the published accounts and of the corrected accounts.

No. 3.—The accounts No. 3 were issued with the semi-annual report of President Watson to the shareholders, dated 2d September, 1873, and were for the period of nine months ending 30th June, 1873. Their subject-matter is comprised in the statutory accounts (No. 4) for the year ending 30th September, 1873. These accounts comprise a profit and loss account, to the credit of which, as on the 30th September, 1872, is brought forward the balance of $2,816,768 reported on under No. 2. We find that from this profit and loss account are omitted certain items proper to it, and which are included in the succeeding statutory accounts; the effect of such omission being to overstate the apparent profit of the period to the extent of $549,194. The particulars of this sum are set out in the statement marked B in the appendix.

No. 4.—The statutory accounts (No. 4) accompany a report made to the bond and shareholders by President Watson, dated London, 4th February, 1874. These accounts include a statement designated "earnings and cash receipts and payments," which is in effect a profit and loss account for the year ending 30th September, 1873; but in which the nominal credit balance of $2,816,768 shown by the preceding statutory account (No. 2) is not brought forward. This statement exhibits a "surplus for the year" of $368,884, after payment of proportion of dividends on stock chargeable to the present fiscal year, $1,569,437, showing the profit of the year to have been $1,938,-321—a result which agrees with the profit and loss account as for the year in the company's ledger. There are, however, corrections applicable to these accounts amounting to $1,494,-449, which reduce the apparent profit of $1,938,321 to $443,872. A comparative profit and loss account for the year 1872–3, marked C, is set out in the appendix, showing in juxtaposition the figures of the published and of the corrected account.

Summary of the foregoing differences affecting the profit and loss account between 30th September, 1871, and 30th September, 1873:

Date.	Profit as shown by the Company's books.	Corrections.	Corrected Results. Profit.	Loss.
1871, balance 30th Sept.....	$1,683,507	$2,139,952	.....	$456,444
Year ending 30th Sept., 1872.....	1,730,843	709,496	$1,021,347	
Year ending 30th Sept., 1873.....	1, 938,321	1,494,449	443,872	
			$1,465,219	
			456,444	
	$5,352,673	$4,343,898	$1,008,775	

From the foregoing summary it appears that the total amount available for dividend during the two years ending 30th September, 1873, was $1,008,775.10, instead of $5,352,-673.60, the amount appearing in the published accounts of the company, the difference being $4,343,898.50; the details of such difference are set forth in the statement marked D in the appendix; the corrections affect both sides of the profit and loss account, thus:—

Corrections to the debit	$5,221,176
Corrections to the credit.....	877,278
Balance of corrections.....	$4,343,898

This amount of ascertained error is liable to be increased in respect of the following matters, which cannot be at present determined:

1. The sum of $400,000 is charged by Messrs. Bischoffsheim & Goldschmidt, under date of October 19, 1872, against the company, as for "special" expenses paid in connection with the removal of the board of directors under the presidency of Mr. Jay Gould. This charge, we understand, is not admitted by the company, but, should it be successfully maintained, we are of opinion that it will constitute a further debit to the profit and loss account.

2. Certain items at present standing charged to capital, but questionably so, to the extent of about $160,000.

3. The loss incurred in the issues of consolidated and convertible bonds, amounting on the 30th of September, 1873, to $1,214,901; the whole of this sum we consider to be properly a charge against earnings, but to be spread over the period of the currency of the bonds and charged periodically to profit and loss in such proportions as would exhaust the entire amount at the due date of the bonds.

4. Any liability which might arise in respect of bonds of the Boston, Hartford & Erie Railway beyond the special guarantee given by the Erie Company in respect of $1,900,000 bonds dealt with by the company.

5. The extent (if any) to which the profit and loss account of the period under investigation may have been short-charged in respect of deterioration of permanent way and rolling-stock; from the absence of the necessary returns we are unable to express any opinion on this point.

We propose now to make some explanatory remarks on cer

tain of the more important errors disclosed by our investigation and included in the preceding statement. They are as follows:

DEBIT ITEMS.

A. Atlantic & Great Western Railway profit and loss account	$1,665,288
B. Boston, Hartford & Erie Railway guaranteed interest account	605,810
C. Messrs. Bischoffscheim & Goldschmidt's account of interest and charges	254,049
D. Surplus stock, result of inventory taken 31st December, 1872	602,196
E. Reparation of roadway and building account	508,101
F. Reparation of motive power and cars account (rolling stock)	404,304

CREDIT ITEMS,

G. Coupons on consolidated bonds, due September, 1872, and March, 1873	130,118
Coupons on convertible bonds, due March, 1873	162,816
H. Overcharges to road department	170,000

Remarks on Item A (Atlantic & Great Western) amounting to $1,665,288.

This sum represents the loss incurred by the company in connection with the working of the Atlantic & Great Western Railway, and consists of loss which to the extent of $1,081,251.30 had been ascertained and shown by the books to have existed up to the 30th September, 1871, and which had been set forth and treated as loss in the several statutory accounts for the years 1869-70 and 1870-71; notwithstanding these facts the item, increased to $1,256,645.51, has been suffered to remain on the books as an asset, and was included in the statement of assets published by President Watson with his report dated 2d September, 1873, accompanying the accounts to 30th June, 1873.

Remarks on Item B (Boston, Hartford & Erie), amounting to $605,810.

In virtue of special guarantees given by the Erie Company interest had been paid on bonds of the Boston, Hartford & Erie Railroad Company to 30th June, 1873, amounting to	$572,560
And three months' further interest thereon had accrued due to the 30th September, 1873, amounting to	33,250
Together	$605,810

This company has ceased to exist, while the liability of the Erie Company to future annual payments of $133,000 still subsists. The circumstances in which the Boston, Hartford & Erie Company had been placed for years were such as to render any recovery from it improbable, and the payments made should not have been treated as assets, but charged off from time to time to the debit of profit and loss. The true character of these payments appears to have been appreciated by the Erie Company under the Jay Gould administration, for we find that so far back as September, 1870, the payments made to that date, amounting to $130,240, were transferred to the debit of profit and loss, which sum was, however, re-transferred, through the medium of an account called the "profit and loss adjustment account," to the credit of profit and loss under date of September, 1873.

Remarks on Item C (Messrs. Bischoffsheim & Goldschmidt's Account), amounting to $254,049.

Various charges for interest on loans, commissions, and certain expenses incurred in London made by the above firm in their capacity of agents have not been entered in the company's books, and have consequently not been debited, as they should have been, to profit and loss account, although they duly appear in the several accounts current rendered by that firm from time to time to the company. The total of the items so omitted from profit and loss is $254,049.

Remarks on Item D (Surplus Stock), amounting to $602,196.

In pursuance of instructions (for copy of which *vide* Appendix E) issued by President Watson to the "officers of the departments of transportation, road and rolling stock," dated 14th December, 1872, an inventory was taken of all tools and materials on hand on the 31st day of December, 1872. These instructions pointed out that the inventory of the transportation department, for example, was to embrace, *inter alia*, all tools, office equipments, stationery at stations and offices; all materials and tools on trains and engines; wood, sawed and unsawed; coal, anthracite and bituminous; oil, waste, tallow, and all other materials and tools held for use or in hand, old or new, and from whatever source received; all materials and tools not available or unsuitable for use as far as known. Like directions are given in reference to the inventories of the road department and the rolling-stock department. These instructions involved the adoption of a different method of arriving at the amount of available materials on hand from that which had previously prevailed. The former method was to consider all tools and materials issued for any specific use as consumed, and consequently as forming direct and final charges against revenue or capital, as the case might be, at the time of issue, and therefore not proper to be included in any subsequent inventory of available materials on hand. For instance, a considerable part of the property coming under the description of "office equipments at stations and offices" would consist of furniture and fittings forming part of the assets taken over from the New York & Erie Railroad on its absorption by the Erie Company in 1861, and the amount of which had been properly treated as part of the original capital expenditure of the Erie Company. Other items of property similarly circumstanced and spread over the lines, works and stations would also, under the instructions, be included in the inventory. The practical effect of compliance with the instructions was therefore to bring back into the stock account a vast quantity of miscellaneous property which had been previously treated in the accounts as consumed for both capital and revenue purposes, thereby creating an apparent surplus of available materials in excess of the balances shown by the several ledger accounts purporting to represent the value of the stocks of materials on hand.

The apparent surplus value of materials on hand as on the 31st December, 1872, so produced, was as follows:

	Per ledger.	Per inventory.	Apparent surplus.
Transportation department	$128,939	$245,601	$116,661
Road department	259,079	525,284	266,204
Rolling-stock department	676,424	895,754	219,329
Total	$1,064,443	$1,666,640	$602,196

The correct method of dealing with these results of the inventory, assuming the surplus to have really existed, would have been to place its amount to the credit of the respective accounts, whether of profit and loss or capital, to which the issues were originally charged, whereas the actual course pursued was to bring the whole amount of $602,196 to the credit of the profit and loss account for the three months ending 31st December, 1872, and that not under the heads of the expense departments from whence the apparent surplus was derived, but in diminution of the expenses of that period under the following heads, viz.:

Expenses of transportation department		$263,000
Against the apparent surplus under this head of	$116,661	
Expenses of road department		234,000
Against the apparent surplus under this head of	$266,204	
Expenses of rolling-stock department		105,196
Against the apparent surplus under this head of	$219,329	
		$602,196

This is a purely arbitrary appropriation of the alleged surplus of materials; and we observe, as to the amount applied in reduction of the expenses of transportation department, that the heads of expense so reduced are those composed mainly of wages and other cash payments, as follows:

Freight agents and commissions	$ 18,000
Labor, loading and unloading freight	140,000
Porters, watchmen, and switch tenders	14,000
Conductors, baggage, and brakemen	19,000
Enginemen and firemen	36 000
Superintendents and contingencies	36,000
	$263,000

The fallacy of the alleged surplus is conclusively shown by the fact, ascertained in the course of our examination, that errors of omission from the debit of the several ledger accounts, purporting to represent the value of materials on hand, existed to the extent of $250,744.20, the correction of which, by increasing the balances of the ledger accounts, would necessarily have reduced proportionately the figures of the apparent surplus.

Remarks on Item E (reparation of roadway and buildings), amounting to $508,101.

The profit and loss account for the six months ending June 30, 1873, was relieved from expenditure under this head to the extent of $719,600 on the ground that the actual expenditure of the period was in excess of the amount properly due to the traffic of the period by that amount. This amount was accordingly credited to profit and loss and debited to an exceptional account called "reparation of roadway and buildings;" but this account was subsequently credited with the estimated difference in value between steel rails laid to replace old iron rails during the nine months ending June 30, 1873, amounting to $211,498, whereby the original debit to the reparation account was reduced to a balance of $508,101, at which figure it still stands in the books as an open balance, not charged off to either capital or revenue. On this state of things we remark that, assuming the expenses of the six months to June 30, 1873, to have been rendered larger than would have been necessary had the roads and buildings been kept in proper repair in former periods, the circumstance would afford no justification for transferring the excess to an inoperative account, such as the so-called reparation account. As a matter of fact, the expense had been incurred, and remained a charge on the revenue of the company, and the utmost use that could legitimately be made of the comparison of it with that of former periods was to account for and explain the excessive amount of expenditure incurred during the period ending June 30, 1873.

Remarks on Item F (Reparation of Rolling-Stock), amounting to $404,304.

The process by which profit and loss has been relieved of the charge of $404,304 is exactly similar to that adopted in reference to the last item, the amount being transferred from the account of expenses of the rolling-stock department to an account designated "reparation of motive power and cars," and allowed to remain at the debit of such account as an open balance. The remarks made on the preceding item are equally applicable to this. In respect of both these items the comparison instituted with former periods is fallacious, inasmuch as the expenditure during the period taken as the basis of the comparison is admitted by the official reports to have been insufficient to cover the deterioration due to the traffic of that period.

Remarks on Item G (amounting to $292,934). Coupons due in September, 1872, and March, 1873, on Consolidated Bonds. Coupons due in March, 1873, on Convertible Bonds.

The full amount of the coupons due at the above quoted dates is, in the books of the company, charged direct to the debit of profit and loss; but being the first coupons payable on the bonds of those issues, their amount is in excess of the interest that would accrue on the periodical instalments paid to the company on account of the principal of the bonds, and constitute *pro tanto* an addition to the discount at which the bonds were issued, and ought to be distinguished accordingly. This we have done, and find that the amount of such coupons is in excess of interest to the extent of $292,934, which sum we transfer from the debit of profit and loss to that of an account to represent loss on the issue of bonds.

Remarks on Item H (amounting to $170,000). Credits in Reduction of Expenses of Road Department.

This item arises in connection with the expenses of the road department for the months of October, November and December, 1872. The amount of such expenses for that period was based, not upon the data presented by the ordinary current accounts kept for recording them, but upon returns made by the out-door officers of the department.

The ledger accounts showed the following amounts as the expenses incurred during the three months ending December 31, 1872, viz.:

Wages and vouchers	$563,245
Materials purchased	126,163
Materials from other sources	152,495
	$841,903
Less amounts charged to other departments and to construction	222,941
Amount to debit of expenses of road department	$618,962
The amount derived from the returns was	1,014,503
Excess over amount charged in the books	$395,541

This excess was taken to represent the value of materials issued from the company's engineering stores during those three months, and was dealt with accordingly in the books by means of an entry under date of December 31, 1872, for the total sum of $395,541 as for materials issued and consumed.

We have endeavored to arrive at the correct amount of the materials issued during those three months; but owing to the circumstance that no account of them was entered in the books, and to the defective character of the documents available for the purpose of the inquiry, we are not enabled to state the precise amount of such issues; however, from a consideration of the available data and of the effect of crediting the amount of the excess to the account of "materials, road department," which was to reduce the balance considerably below its normal average amount, we estimate that a sum of $100,000 or thereabouts has been overcharged to profit and loss. In adjusting that account we have accordingly given credit for this estimated overcharge.

In March, 1873, a payment of money was made to the Elmira Rolling Mills Company in lieu of old rails which should have been delivered to them in terms of their contract for the exchange of rerolled rails supplied by them at various previous dates. This payment has been charged to the account of "expenses of road department," whereas it should have been charged to the account of "materials, road department;" the effect of this error was to overstate the expenses of the department by about $70,000, which we correct in our adjustment of the profit and loss account by crediting it with that amount.

DIVIDENDS.

The following is a statement of the dividends declared and paid during the period embraced by our investigation:

Date when declared.	On Preference Stock.		On Common Stock.	Total.
29th December, 1871	*a* $298,791		.....	$298,791
29th May, 1872	*b* 298,791		.....	298,791
11th February, 1873	*c* 298,791	*e*	$1,365,000	1,663,791
22d September, 1873	*d* 298,791	*f*	780,000	1,078,791
Total	$1,195,167		$2,145,000	$3,340,167

The board minute on which the declaration of the dividend (*a*) proceeded states it to be based on "an estimate of the earnings of the Erie railway for the six months begining July 1st 1871;" that a sufficient amount has been probably earned in that period to justify the resumption of dividends on the preferred stock, and a dividend was accordingly declared of 3¼ per cent. for the six months ending 31st of December, 1871. The minute declaring the dividend (*b*) states it to be 3¼ per cent. "from the earnings of the current six months." The dividends (*d*) and (*e*) proceeded on a report from the President on the earnings and expenses of the company for the year ending 31st December, 1872, and on an identical statement of figures from the Auditor-General, but how those figures were arrived at the books do not show. After considerable discussion, resolutions were passed declaring a dividend of 3½ per cent. upon the preferred stock "out of the earnings of the company of the six months ending 31st December, 1872," and a dividend of 1¾ per cent. upon the common stock for the twelve months ending 31st December, 1872. The accounts presented by the Auditor and the question of dividend for the six months ending 30th June, 1873, on the common stock and the preferred stock were, by a minute of the board, dated 28th August, 1873, referred to a committee, who made their report to the board at its meeting on the 2d September, 1873, recommending a dividend of 3½ per cent. upon the preferred stock and of 1 per cent. upon the common stock; and a resolution was thereupon passed by the board declaring dividends (*d* and *f*), in pursuance of such recommendation, "out of the earnings of the road, appearing to its credit as by the Auditor's accounts." The accounts here referred to are identical with those published with the semi-annual report of the President, dated 2d September, 1873. With respect to the dividends declared upon the preferred stock, the result of our investigation is to show, subject to the effect on the profit and loss of the periods to which they relate of the adjustment of the charge of $400,000 made by Messrs. Bischoffsheim & Goldschmidt and of the other outstandings already indicated, that the earnings were sufficient to justify their payment; the corrected amount of these earnings for the two years ending the 30th September, 1873, is $1,465,219; the four dividends (*a*, *b*, *c*, *d*,) on the preferred stock for the two years ending 30th June, 1873, amount to $1,195,167; leaving the sum of $270,052, which would have been presumably applicable to the payment of dividend on the common stock but for the deficit of $456,444.78 shown by the corrected profit and loss account to have existed on the 30th of September, 1871. It follows, therefore, that there existed no balance of profits applicable to the payment of the dividends (*e* and *f*) declared upon the common stock, amounting to $2,145,000.

LIABILITIES AND ASSETS.

The only statements of liabilities and assets published during the period under investigation are those comprised in the statutory accounts to the 30th September, 1872 (No. 2), and those accompanying the President's semi-annual report to the shareholders to the 30th June, 1873 (No. 3).

The following is an abstract of the statement of liabilities and assets to the 30th September, 1872:

Liabilities, 30th September, 1872:	
Stock	$86,536,910
Bonds	26,395,600
Floating debt and bills payable, after deducting cash in hands of treasurer and agents of the company, and current accounts receivable	2,517,301
Profit and loss	2,816,768
Total	$118,265,979
Assets, 30th September, 1872:	
Cost of road and equipment	$108,807,687
Construction accounts	2,601,705
Lake Erie propellers, and other items	1,287,360
Bonds of other companies	3,295,431
Stocks of other companies	766,394
Materials on hand and in shops	1,597,400
Total	$118,265,979

The item of "bonds" includes the sum of $3,000,000 consolidated mortgage bonds, which, according to the books, had been repurchased by the company previous to the date of the statement, and were not then extant, and does not include the bonds which, although not entered in the books, had been issued prior to and were existing at that date, amounting to $4,383,500.

The item of "floating debt," etc., was made up of the following sums:

Creditor ledger balances		$11,161,077
From which were deducted cash and other debtor ledger balances	$5,643,776	
Bonds repurchased	3,000,000	
		8,643,776
Producing the sum of		$2,517,301

as appearing in the statement of liabilities.

By the method thus adopted the totals, both of liabilities and assets, were incorrectly reduced by $8,643,776.

The statement marked G in the appendix is a comparative balance-sheet to the 30th September, 1872, setting out in parallel columns the items forming the statement of liabilities and assets as published, the same as shown by the books of the company, and as corrected by the result of our investigation.

The subject-matter of the statement of liabilities and assets included in the published accounts to 30th June, 1873, being substantially incorporated in the balance-sheet prepared by us to the 30th September, 1873, it has not been necessary to subject that statement to separate and distinct examination and correction.

Information elicited by our investigation, together with that contained in the books, has enabled us to prepare the accompanying balance-sheet to the 30th September, 1873, in corroboration of the results arrived at by us in relation to the profit and loss account, which exhibits a net deficit of $2,831,392.30 at that date, subject to the probable increase in respect of matters previously referred to.

The balance-sheet also presents a general view of the position of the company as on the 30th Sept., 1873, according to the books, and inclusive of our corrections; but an authoritative examination and determination of the many questions both of law and fact which affect the nature, extent, and value of its multifarious liabilities and assets must be accomplished before a complete elucidation of its present financial position can be effected. And for the purposes of such an examination much useful information accumulated in the course of our investigation—though not bearing directly on the special object of it, as indicated by our instructions—can be made available.

From the information acquired by us with respect to the item of $8,229,234, the nominal amount of real estate and bonds and shares in various companies recovered from Jay Gould, we are of opinion that the actual value of the recoveries will fall very far short of the sum stated. The amount ultimately realized should go to the credit of capital account.

The system of accounts requires amendment in many important particulars, and should be remodelled.

The President and officers of the company in New York readily gave us complete access to the books and documents under their charge, and generally rendered us every facility for the prosecution of the inquiry entrusted to us. We remain, gentlemen, your most obedient servants,

QUILTER, BALL & Co.
TURQUAND, YOUNG & Co.

To the Executive Committee of the London Banking Association.

RAILROAD GAZETTE

Published Every Saturday.

CONDUCTED BY

S. WRIGHT DUNNING AND M. N. FORNEY.

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Editorial Announcements.

Addresses.—*Business letters should be addressed and drafts made payable to* THE RAILROAD GAZETTE. *Communications for the attention of the Editors should be addressed* EDITOR RAILROAD GAZETTE.

Contributions.—*Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to* ALL DEPARTMENTS *of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.*

Advertisements.—*We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay,* EXCEPT IN THE ADVERTISING COLUMNS. *We give in our editorial columns* OUR OWN *opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.*

THE LONDON ACCOUNTANTS ON THE ERIE RAILWAY.

The report of the professional accountants sent to this country by the London Banking Association to examine the accounts of the Erie Railway Company has been published, and the conclusions are of a nature to justify the examination, which it will be remembered (or perhaps will not be remembered by many who do not pretend to keep in mind the special facts in the history of this unfortunate company, but only the general fact that it is always in trouble) was ordered at the time when the late Auditor of the company attempted to d stroy its credit by publishing detailed charges of a false presentation of its financial condition, that time being chosen when President Watson had completed negotiations for a loan which was expected to prepare the way for a season of continuous prosperity for the company, Mr. Watson himself was understood to invite the investigation, which indeed Dunan's charges had rendered indispensable to the credit of the company.

Yet the credit of the company is certainly not benefited by the result of the accountants' examination. We do not mean that it is as bad as Dunan's charges made it, or as it would have been if his charges had been unnoticed or met only by a simple denial; but it is not as good as it was before the Dunan charges, or at any time after the overthrow of the Gould management. The publication of the facts concerning the company (if the accountants have succeeded in getting at them) has shown its finances to be in a worse state than its reports have indicated, and the difference between the company's and the accountants' reports is something enormous, not so much perhaps in the gross amount of the difference (for the Erie has not for many years had a surplus which could be justly called "great" in proportion to its capital), but in proportion to the amount of the surplus. Where the company's officers reported a surplus of $5,353,000 surplus over working expenses and interest charges from the receipts of the two years ending with September, 1873, the accountants find that there was but $1,009,000, so that they represent the board as having magnified more than five times the stockholders' profits during this period, which certainly as an error is something magnificent.

Still we do not find Mr. Dunan's charges specifically confirmed. Nor do the English accountants intimate that the books were kept "with intent to deceive." The appendices, which give in detail the corrections in the company's accounts, made by the accountants, have not yet reached us, and so we are not able to make a comparison of items; but Mr. Dunan charged that for the single year ending with September, 1873, $3,646,000 was charged to construction account above the actual expenditures. The English accountants deduct $1,494,000 from the reported profits of that year. But if the late Auditor's statements were not correct in detail, his charge that much too good a face had been put on the company's condition by exaggerating the profits and paying dividends out of the proceeds of the new loans has been confirmed by the investigation, the report of which, however, makes no charges against any one, but simply states the facts as the examiners found them, and leaves the reader to draw his own conclusions. We do not see how they can fail to be unfavorable, though the London Secretary in sending out the report has the assurance to say that the Directors "confidently publish the accompanying reports as calculated to restore complete confidence to bondholders, and to assure shareholders of the future value of their investment." English investors are very much unlike other men if they can have complete confidence restored by evidence that at the close of one year their directors reported a balance of profit of nearly $1,700,000, when there was actually a deficit of $450,000; that for the next year a reformed administration repeated this statement of a credit balance at the beginning of the year, and also reported as the profits of the year a sum too great by $700,000, making a credit balance of $2,800,000, when it should have been a debit balance of $32,000; that nine months afterwards this administration overstated the profits by $550,000; and that for the whole of this second year it reported the profits at $1,938,000, when they did not quite reach $444,000; that finally the administration during these two years when the true profits were $1,009,000 reported them as $5,353,000, and on the strength of this statement of profits solicited a large new loan, while there were contested claims against the company which, if decided against it, will cause this million of profit nearly to disappear. The Secretary in handing the accountants' report to the proprietors virtually said to them: "We give you here evidence that we have reported the profits of your company five times as great as they really were, which evidence we confidently publish as calculated to restore complete confidence in bondholders, and to assure shareholders of the future value of their investment." This has a close resemblance to that quality, supposed to be peculiarly American, called "cheek." Perhaps, however, the directors thought it very encouraging that the road should have appeared to earn the interest on its bonded debt even. More encouraging are the further statements accompanying this introductory note "that the Board hopes, in the annual report to be issued in due course, to announce that the company is at length free from the floating or open debt which heretofore has been so embarrassing," and that there will soon be published regular monthly statements of revenue and expenditure.

This report of the London accountants has been in this country about a week, and most of the New York papers have noticed it; but it seems to us remarkable that so little attention has been paid to its conclusions. The matter is important, not simply as affecting the condition of the Erie Company, but also and more so as a feature of railroad policy. For this charge of misrepresentation is not made against a notoriously corrupt management; there have been times in the history of the Erie Company when it was naturally to be expected and would have excited no surprise, but the accounts examined were those of a "reform" management, and that not in pretence only, but doubtless in fact. We believe that no one at all familiar with the facts has ever doubted that Mr. Watson came into the Erie determined to manage the property solely for the best interests of its proprietors, and that he worked long and earnestly to that end. If the misrepresentations described by the accounts are real and were made knowingly, doubtless the intention was not to cheat the owners of the property, but to benefit them, so that the policy is taken from the category of violations of trust by spoiling the shareholders, and becomes a deception of the public for the benefit of the shareholders—utterly indefensible, of course, but of a moral quality very different from that of the acts which first wrecked the Erie.

This report confirms the impression which we have heretofore felt and expressed, that the late management, coming into power when the shares bore an absurdly high price, and knowing that the shareholders would feel its administration to be a failure if their shares should greatly depreciate in price under it, and that it would perhaps be quite impossible to obtain the capital which was indispensable to save the company from failure, but with which it could almost c rtainly be made an eminent success—knowing this, we say, it seems that the late administration dared not make the true condition of the company known, but hoped while concealing its misfortunes to secure the necessary capital, with which it felt sure (and with reason, we believe,) that the new loans would be perfectly safe and the shares greatly improved in value. If the expectations of the shareholders had not been raised so high and so unreasonably, it would have been less dangerous to expose the condition of the company, and an appeal to them to advance the money which might make their property valuable and which was probably indispensable to save them from a total loss, might have had a favorable response. But under the existing condition of things, the management seems not to have dared to be so frank.

We have no disposition to defend or excuse such a policy of concealment, but it is easy to see how it may have seemed to promise the good of all parties concerned, and to be the only policy not leading to ruin. It was, in fact, partly successful, for under it, if not by it, the company obtained considerable loans which have doubtless been greatly to its advantage and perhaps saved it from great misfortune; but we have seen that it failed of complete success; and the new administration, after two years and a half of exertions of its predecessor, finds the property still indispensably requiring expenditures of large capital in order to make it profitable to its shareholders.

The fall in the price of the Erie shares after the publication of the report has amounted in the aggregate to about $4,000,000, or about 16 per cent., and they are now worth a third less than at this time last year, and only two-fifths as much as at one time after the overthrow of the Gould management. This is fortunate, we believe, for it will hardly be possible for any administration to deal properly with the property so long as the shareholders have unreasonable expectations of returns from it. When they have become fully convinced that the Erie is simply a property of great capabilities which can only be developed by the expenditure of a large amount of new capital, then there will be some hope for it. We are glad to see that Captain Tyler, the English engineer who lately inspected the property, has reported to this effect. Now if some one will tell the shareholders plainly that they never can hope to have any returns until this new capital is supplied; that in fact, without it, in course of time, when the competing railroads shall have been greatly improved, as they certainly will be and are being, their title to the road will probably pass to the bondholders—then probably they will bestir themselves and secure in some way the advance of the necessary new capital.

But it will probably be impossible to do much for the Erie unless it gets a stable ownership. If it continues to be the sport of the speculators, it will probably sooner or later (and the sooner the better) reach bankruptcy. None but its stockholders are likely to provide it with the capital it needs, and stockholders who do not expect to hold their shares more than a month or two are not the people to advance money for the sake of a remote though abundant return.

A PHASE OF COMPETITION.

Although there seems to be almost unanimity among the railroad companies concerned in accepting the regulations and the rates prescribed by new railroad bureaux organized at the instance of the trunk lines, yet not all those whose co-operation is desired are willing to become parties to the contract. By thus remaining independent they preserve in some respects a veto power on the acts of the commissioners, which, so far as they affect competition for business, can become effective, or entirely so, only by unanimity among the competitors. Part of the unwillingness is of companies which expect to keep their business separate from that commonly called "through," and to make their rates and rules for themselves, or in company with one or two other competing companies, forming thus a separate smaller district between which and eastern points rates will be reckoned by adding the local or district rate, as we may call it, to the through rates on the trunk lines made by the Commissioners. There is, we believe, no disposition to give the Commissioners any greater jurisdiction than may be necessary to regulate through traffic, but the railroads now interlace each other to such an extent that the lines which may seem to form almost an isolated system generally have s me points where a competition may spring up affecting seriously the traffic of scores of other points perhaps quite distant and much more important. The adherence of these Western roads, however, is not indispensable to the success of the combination. More danger, it would seem, is to be apprehended from the competitors of the main trunk lines, the Grand Trunk on the north, and Baltimore & Ohio on the south, which are not parties to the contract and have usually been unwilling to become parties to any similar combination. The latter has an all-rail route only to Baltimore; but the former competes for a large part of the New England business.

It is always extremely difficult to make any agreement concerning through rates which a route markedly inferior, either by length or number of transfers or otherwise, will abide by. It might seem at first glance that a company

with a line 1,200 miles long would be eager to accept the highest rates that one but 900 miles long would consent to. But it is never unwillingness to make profits which causes the longer routes to offer lower rates than the shorter ones prefer, but simply the fact that, owing to their disadvantages, one of which is this greater length, they cannot offer equal service, and that shippers will not pay the same prices for their poorer as for their rivals' better transportation. Still, so long as the inferior route can get business at any price which leaves the slightest margin for profit, it will not abandon it to its competitors, and would not be justified to its shareholders in doing so, unless those competitors give it something in return. The rate on grain to Boston after the 10th of November is to be 50 cents a hundred from Chicago. Now if the Grand Trunk finds that it cannot get any shipments for more than 45 cents when the other lines get 50, and the cost of carriage by its route is 44 cents, its managers will not feel justified in giving up this business entirely, so long as they have car and road capacity to spare, unless these rivals can injure it if it persists in such a course, or benefit it if it accepts their terms, to an extent equalling the profit on their grain business. The rivals can always make the business unprofitable to it by reducing the rates to a point which, giving them some though an inadequate profit, are not equal to the expense on the Grand Trunk, which can then do business only at a loss. But then it need take no grain and will lose very little. We do not mean to say that this is exactly true of the Grand Trunk, but it is an illustration of the way in which the maintenance of uniform rates presents itself to a company which has a decidedly inferior line.

This, though death to the railroad companies, may seem fun to shippers, though it usually effects nothing more than the transfer of burdens from one class to another; but there can be no doubt that on the whole there is a waste in this way—an absolute greater expenditure as a whole by the community for the same amount of work than if the transportation was all done by the best lines. For instance, if all of the Grand Trunk's business between Boston and Chicago should be handed over by it to the shortest route, that route could do the work at the Grand Trunk's rates, pay the Grand Trunk whatever it would have made on the business, and have some margin of profit left for itself—always provided that there is any margin of profit. Thus the shippers having paid the same sum for transportation, there would be the profit to the short line plus whatever profit the Grand Trunk would have got.

Now the obstacles to an arrangement for making up to the competing line the value of the traffic which it could get if it tried are almost insurmountable. It is impossible to say how much business the inferior road might get, and it will never agree with its rivals on that point; then it usually does not really know how much it costs it to do that particular work, and there is disagreement there again; moreover, circumstances are continually changing, new connections are constructed, and each company feels sure that hereafter it will be able to do a great deal more business and at a much less cost than ever before. Consequently competition continues and frequently is carried to such lengths as to render all through traffic in one direction entirely unprofitable.

It is easy to see at how it might pay the short line to give the inferior one an amount much greater than any possible profits on the latter's through business to keep out of the field, or, what would be nearly equivalent, to maintain uniform rates. Let us say that there are 20,000,000 hundred pounds (a million tons) of freight carried between two competitive points, for which the direct lines would make the rate 50 cents per hundred. Now the inferior line, in order to get traffic, makes its average rate 40 cents, which results in forcing the direct ones to accept an average rate of 45 cents. Under these circumstances the inferior line gets, say, 3,000,000 hundreds, and receives $1,200,000 for carrying it; the direct lines get $3,150,000 for carrying the rest. But the long line perhaps makes but one cent. profit per hundred, while the direct lines make ten cents. Then we have as the result of the year's traffic:

	Receipts.	Profits.
Short Line	$3,150,000	$700,000
Long Line	$1,200,000	$30,000
Total	$4,350,000	$730,000

If the business could be kept at 50 cents, the gross receipt would be $5,000,000, and if all of it went to the short lines, they would make a profit of $1,500,000 on it, or more than double the actual profits; but with average rates not increased, the short lines could carry the entire traffic at an expense of $3,500,000, and the margin of profit would be $850,000, and the profit on the traffic formerly carried by the long line would be $150,000, instead of $30,000. There is no doubt that there are many competing routes on which the result is similar to this. The inferior route, by making a rate which barely covers expenses, gets a traffic on which it makes not more than one-fifth of the profit which the short route would make on the same traffic at the same rate.

This, however, is one of the natural results of all kinds of competitive business. With railroads the effects are apt to be more serious than in almost any other business, because the capacity is much greater than the existing business, which almost all railroads have, inclines them to make the greatest efforts to gain any traffic which adds in the slightest degree to their profits, and of course without any care for the effect on other roads. If these other roads are unable to earn a reasonable income on the investments in them, this competition may be most disastrous, for, as we have seen, the competition which adds only $30,000 to the treasury of one company may deprive another or others of no less than $770,000 of profits. The inferior road (inferior, we mean, as a route for this particular traffic) may be prosperous or the reverse, that depending entirely on the other traffic; but it is always impelled by the circumstances which we have recited to this policy which adds slightly to its own profits and takes an enormous amount from those of its rivals.

We see, then, why it is that the roads which have the longest routes, the most obstacles, and consequently the greatest expenses, are almost always those which are willingest to take the lowest rates and unwilling to agree to "keep up" rates. They are not opposed to high rates: quite the contrary, they can never be made too high for them; but they always endeavor to accept shipments at lower than the regular rates, and very naturally, because otherwise they would have to sacrifice the competitive traffic. This too, we think, will always make it impossible to make companies with such lines parties to agreements to maintain rates unless they are offered some advantage or threatened with some disadvantage by their rivals, or unless their rate is openly recognized as lower than that by the direct route. There is much to say in favor of the latter policy, but the obstacles to it seem unsurmountable, and economically it has the disadvantage that the work which costs the most is offered at the lowest price.

The Exhibition of the Franklin Institute.

Mechanics whose practical experience ended ten or twenty years ago would probably find, if they were called upon now to do a job of work, that it would be necessary for them to partly learn their trade anew. The improvements in all kinds of machine tools have been so many and of so important a character that it would be necessary, in order merely to handle them, to acquire a considerable amount of new information concerning their construction. But the most remarkable feature about their construction is the extraordinary accuracy with which they will do work as compared with that which was done when "we were boys." Probably most of those of our readers whose practical experience was acquired beside a vise-bench or in front of a lathe can recall their early efforts in the construction of tools to be employed in doing more than ordinarily accurate work. In those days if two steel straight-edges were made to fit each other in such a way that if the edge of the one was placed upon that of the other and then reversed and held up towards the light they would not allow it to show between them, they were supposed to be as accurately "true" as the best workmanship could require. In those days plane surfaces were trued up with a wooden block or piece of plank made to conform as nearly to a plane surface as the skill of a pattern-maker would permit. Castings were planed square by setting them on a planer as nearly true as was possible with the use of a self-constructed try-square which was tested on a smooth board with a scratch awl, and when superior accuracy was needed in turning or drilling, a pair of callipers was set by the side of a two-foot rule, which was folded inside and on which the marks of sub-division were less obscured by wear and dirt than on the outside. In those days the accuracy of work now possible with the use of Whitworth gauges and of grinding machines, which are now coming into such extensive use, was unknown, and the work done by the planers and lathes of those days was never supposed to be accurate unless afterwards trued up with a file.

These reflections are suggested by an inspection of the exceedingly good display of machine tools at the Franklin Institute Exhibition, a portion of which we described last week. We then referred to the display made by Messrs. William Sellers & Co., who exhibit a greater variety of machines than any other manufacturer, the design and workmanship of which is of the very highest degree of excellence.

They exhibit: 1. A 25-in. screw-cutting and turning lathe of their well known pattern, with 12-foot bed. The bed of this lathe is made with a flat top instead of the V pattern which is ordinarily used in this country. It would be impossible to describe the merits of this machine without writing an extended essay on the subject of lathes, for which there is no space here. The arguments in favor of the flat-top bed are, (a), it presents more wearing surface; (b) the saddle of the slide-rest bears over its whole under surface and is thus supported up to the edges of the center opening of the shear. Having less distance to spare unsupported than in the V shear, and as two of the latter are ordinarily used, the capacity of the swing over the slide-rest is increased if its span and consequently its thickness is reduced. The flat-top bed or shear is easier planed true than the other V-shaped form, and having more surface exposed to wear is less liable to injury. All the arrangements about this latter are located in very convenient positions; the bed is heavy and well-braced, and the effect of an examination of it produces a longing to take off one's coat and try one's hand at a job of work. 2. This firm exhibits one of their well-known planers with a spiral or helical pinion. This has frequently been described heretofore, but it may be well to say to those who are not familiar with it that it consists of a four-threaded screw placed diagonally under the table of the machine. The position of the threads is of course inclined to the axis of the screw, which, in turn, being inclined in relation to the centre line of the bed, the threads are at right angles or nearly so to the centre-line referred to. The threads gear into a rack of very nearly the same kind and in the same position as that used with ordinary planers driven with a pinion. The strains are therefore parellel with the center-line of the bed. As it was thought that the friction of the inclined screw would have a tendency to throw the planer bed to one side, the teeth of the rack are placed at an angle of about five degrees, to compensate for this tendency. The shaft of the driving pulleys of this machine is placed parallel to the bed, so that the planers can stand in a line with the latter and other similar machines in a shop. 3. The machines which come next in our notes is a 12-inch shaping machine, with two tables and a new and very convenient clamp vise, a pair of centers for circular work, and with forward, back, up and down feed. 4. A 42-inch slotting machine, with 10¼-inch stroke, with the so-called Whitworth motion. This machine has a compound table, and is provided with a circular table operated by a wheel-and-tangent screw, with self-operating feed. The feed in this machine occurs always at the top of the stroke and never during the cut. The working handles to operate this machine, and, in fact, all the machines exhibited by this firm, are within easy reach of the workman and in such a position as to enable him readily to see the point of the slotting-tool as he adjusts the feed. 5. A 5-foot radial drill with two tables, one of them adjustable. 6. A vertical drill, or drill press, with a compound table which moves horizontally, like a slide-rest, and is moved vertically by power. The spindle is driven directly by a belt, and the power is applied to raise and lower the table by a very ingenious application of two friction clutches. We hope soon to give an engraving and a fuller description of this machine, the construction of which it is impossible to make clear without an illustration. 7. A 48-inch boring mill for car wheels. The driving gear which conveys the power, and in this machine must resist most of the strain, is made unusually heavy. The frame, which is subjected to less strain than in most other machine tools, is made comparatively light. It is supplied with a crane which swings above the machine, and to which is attached Weston's hoisting gear. The boring bar of this machine is forced down from above the table, differing in this respect from some of the earlier machines manufactured by this firm. It has automatic and hand feed with hub-facing attachment. 8. Two bolt-cutting and nut-tapping machines, one of them cutting from ¾ to ⅞ in. and the other from ⅝ to 2 in. These machines have the new oil-feeding attachment, by which the oil is pumped up and discharged from the inside of the spindle outwards on the bolt which is being cut. The effect of this is that the chips are washed away from instead of into the dies. The oil is in this way applied at the point where it is most needed, and at the same time the dies are prevented from being clogged by the chips. 9. A nut-shaping machine in which all the six sides of a series of nuts which are placed on a mandrel are shaped at once by revolving cutters. These cutters are arranged so that the edges of the one will clear those of the other as they revolve, so that they shape the nuts accurately to the edges. Oil is fed to the top of the mandrel to keep the cutters oiled. 10. A surface grinder for truing up all kinds of hardened steel plane surfaces. This consists of a surface plate with an opening at the center in which an emery wheel revolves so that its periphery just projects above the top of the plate. The height of the latter is regulated by a screw, so that the position of the emery wheel may be adjusted as it is worn away. The object to be turned up is placed on this surface plate and moved backward and forward over the emery wheel. As the movement of this object conforms to the true surface of the plate, the emery wheel cuts it away until the form of the surface plate is repeated on the object moved over the emery wheel. The periphery of the emery wheel runs at a speed of about a mile per minute. 11. Next to the surface grinder is a machine for grinding drills with an emery wheel. In this the drill is held in a self-centering clamp, so that it is beveled equally on each side of the center, and at the same time the edge of the drill is ground with the requisite amount of clearance or "relief" to the cutting edge. 12. A stand with specimens of shafting, hangers, pulley-blocks, couplings, pulleys, countershafting, etc., showing the peculiarities and methods of construction adopted by this firm in the manufacture of appliances for transmitting power, which they have made a specialty, and perfected and developed into the system which they have applied with so much success. 13. They also exhibit five sizes of the injectors which they manufacture, with specimens of starting valves, check valves and water regulators used with the injectors. They also show the construction of their injector by a specimen of each one of the different kinds of injectors they manufacture with a portion of the outer case planed away, so as to make the internal arrangements visible. All the starting and check valves are also shown in a similar way, which makes the construction more plain than it would otherwise be possible to represent it. 14. We omitted to mention in the proper order this firm's machine for cutting teeth on gear-wheels, and perhaps we can do no better than to make an extract from a translation of an article published in the *Chronique de l'Industrie* describing the tools exhibited by this firm at the Vienna Exhibition in 1873:

"All those who have seen the machine for cutting teeth on gear-wheels, exhibited by Messrs. William Sellers & Co. in Paris, and who have had the opportunity to study its mechanism, are of our opinion, viz., that it is a real pleasure for a machinist to follow its movements when it slowly advances the cutter, makes the quick return and final stop, while another automatical arrangement sets the dividing mechanism in motion for the next tooth, and so on till the wheel is finished. It is marvelous to see a whole wheel cut, no matter of what number of teeth, without any manual help except the oiling of the machine by the operator. The machine of this class exhibited in Vienna has received the latest improvements, among which we have remarked a particularly useful arrangement for sharp-

ening the cutters after a long use, while their cutting edges retain the desired form."

No. 15 of this exhibit is a 300-lb. steam hammer, which is exhibited in another portion of the building, and which we will therefore describe hereafter.

Messrs. Edwin Harrington & Son of Philadelphia, exhibit: 1. A 37-in lathe, 16 feet long, triple-geared, with lateral and cross-feed and screw-cutting attachment. In these lathes the ordinary V-shaped slides are used, but in order to overcome the objections which are urged against them they are made wider than usual with wide, flat tops, so as to give more bearing surface than is usual in similar machines. 2. A 20-inch gap lathe, 10 feet long. This form of lathe, although not much used in this country is very common in Europe. To those not familiar with it we will say that its peculiarity is that a portion of the bed or shears is cut away immediately under the face-plate, so as to admit objects of a larger diameter, such as a pulley, to be swung. A movable piece is usually fitted into this gap, which can be inserted or removed as may be required. On the lathes manufactured by Messrs. Harrington the outer end of the table or slide-rest is supported when it runs over the gap by a diagonal brace which rests on a slide at the bottom of the bed below the gap. For shops where a great variety of work must be done, these machines answer an excellent purpose, as they are suited for work of a small as well as for that of a large diameter. 3 and 4. A No. 1 and a No. 2 20-in. engine lathe. Both of these have cross and lateral feed, compound rests and screw-cutting attachment, but the first is made heavier than the second, the latter being intended for a cheap tool for light work. 5 and 6. One 18-in. and one 16-in. by 10-feet lathe of the same general character as the former. 7. An extension lathe. This somewhat resembles the gap lathe, but instead of having simply a gap under the face-plate, the bed or shear is divided longitudinally so that the upper half can slide on the lower half. It is evident that when the upper half is moved back it will have a gap below the face-plate of greater or less length, according to the distance that the upper slide is moved back. The lathe has 22 inches swing over the top part of the bed, and 36 inches over the bottom part. The bed, when the two halves are closed up, is 8 feet long and when the upper is extended the whole length is 15 feet long. It will turn the whole length of the upper half when the latter is in any position. The lathe is braced in a slide at the bottom of the bed in the same way as was described for the gap lathe. The extension lathe is triple-geared, has lateral and cross-feed, compound rest, and attachment for screw-cutting. 8. A 39-in. diameter vertical boring mill, which is intended for light work and therefore not made as heavy as car-wheel borers, it has, however, been used for boring car-wheels, and although it is incapable of doing as much work as the heavier machine, it is said to be quite efficient for shops where a comparatively small number of wheels are needed. 9. A 16-in. lever drill. In this the drill is fed with a lever and is intended for light work. It is a cheap machine the price being only $125. 10. A 36-in. vertical drill. The table can be raised and lowered and swings out of the way so that an object to be drilled can be placed on the base. The machine is driven by a cone on the back and near the top of the column. This cone is double-geared, and the machine has an automatic feed. The drill spindle is counterweighted by a weight which slides on the top section of the column.

Messrs. Thorne, De Haven & Co., also of Philadelphia, exhibit four sizes of their portable drills. These machines are driven by an endless rope instead of a belt. These run over idlers, which turn in any direction on the counter-shaft, so that the drill can be placed in any position within the range of the rope. The latter is kept tight by a weighted idler which takes up the slack and produces the requisite tension on the driving rope. The No. 1 machine will drill holes up to 1 in. in diameter, and in a surface of 33 in. diameter; No. 2 drills up to 1⅛ in. holes, and in a surface 43 in. in diameter; No. 3 drills 2 in. holes in a surface of the same diameter, and No. 4 will bore 8 in. holes in a surface 56 in. in diameter. 2. The same firm exhibits two 12 and 15 in. vertical drills with self-feed, movable table, and the larger one with base-plate for drilling large objects. The table can be raised and lowered and swung around out of the way. 3. A 48 in. radial drill with base-plate and box table, the latter at right angles to the former. The table is vertically adjustable in line with the spindle. This machine is back-geared, has self-feed, and the spindle is counterweighted. The feeding attachment is very simple and ingenious, and consists of two eccentrics which work a pawl on a ratchet wheel which feeds the screw of the spindle.

Messrs. C. Van Haagen & Co., of Philadelphia, exhibit one of their patent rotary shapers and planers. All the work of this machine is done with a revolving tool, with which plane surfaces 3 ft. 9 in. long and 24 in. wide are planed off, key seats or slots of the same length, and gear wheels, racks, bevels or miters of any width are cut. It will also bore horizontally 24 in. in diameter and 38 in. long. It moves automatically either longitudinally, transversely or vertically. This machine was illustrated in the RAILROAD GAZETTE of November 14, 1872. The table revolves so that either face of the work can be presented to the tool. This firm also exhibit specimens of their patent expansion boring tool, which is intended to be used either with the machine explained above or with any other drilling or boring machine. The construction of these tools could not be explained clearly without an engraving. They also show a drill-grinding machine, in which an emery wheel is used, but it revolves in water to prevent the heating of the drill during the process of grinding. It is arranged so as to grind twist and flat drills from ¼ to 2⅛ in. in diameter and of any length. The mechanical arrangements by which the drill is fed up to the wheel and the cutting edge is given the proper form are exceedingly ingenious. The drill in this machine is held and guided from the shank, whereas in the Sellers machine it is held at the point or next to the cutting edges. It would be impossible to describe the method of holding or feeding the drill so that the description could be understood without the aid of engravings. Among the other machines exhibited by this house is one of their horizontal attachments for upright drills, and a portable hand drill with self-feed. This drill is adjustable in every way, and can be set in any possible position so as to drill in any direction. It also has an adjustable clamp which can be attached to an irregular or inclined surface. They also have a model of their patent friction gear, which consists of a series of grooves turned in the surface of the gear, which in the model is a pair of miter wheels. The section of these grooves approximates to that of the section of an ordinary tooth of a wheel.

Mr. L. B. Flanders exhibits several of his portable cylinder-boring machines. These can be driven either by hand or power. The largest machine will bore a cylinder 64 in. in diameter and of 12 feet stroke, and will bore either horizontally or vertically. The driving gear is adjustable, so that a driving belt can be carried in any direction. Another machine will bore 40 in. in diameter and 4 feet stroke. The smallest size exhibited, which is the one used for locomotive cylinders, will bore cylinders of 24 in. in diameter and 30 in. stroke, and can be operated either by power or hand. It is hardly necessary to speak of the convenience of these machines in a locomotive repair shop, as all master mechanics have doubtless had occasion to appreciate it. Mr. Flanders also exhibits models of his patent spring packing, which is extensively used in stationary engines.

We hope to continue the description of this very interesting exhibition in next week's RAILROAD GAZETTE, as there still remain a great many objects of very great interest to be described.

Record of New Railroad Construction.

This number of the RAILROAD GAZETTE has information of the laying of track on new roads as follows:

East Broad Top.—This road, of 3-feet gauge, is extended from Orbisonia, Pa., southwestward 20 miles to Robertsdale. *Baltimore, Pittsburgh & Chicago.*—Extended from Avilla westward 10 miles to Albion, Ind. *Flint & Pere Marquette.*—Extended westward 13 miles to a point 28 miles west of Reed City, Mich. *Galena & Southern Wisconsin.*—Track has been laid (of 3-feet gauge) from Galena, Ill., westward 9 miles. *Texas & Pacific.*—Extended from Dallas west 10 miles to Eagle Ford, Texas.

This is a total of 62 miles of new railroad, making 1,242 miles completed in the United States in 1874, against 2,955 miles reported for the same period in 1873, and 5,312 in 1872.

A FOREIGN DEMAND FOR AMERICAN MACHINERY is much to be desired, especially at such a time as this, and we are glad to learn that some of our manufacturers are seeking and finding it. Dr. Williams, of the Baldwin Locomotive Works, has just returned from Brazil, and, we are glad to announce, with a number of orders for locomotives for that country. Mr. Francis, who represents the establishment of Messrs. William Sellers & Co., is now on the west coast of South America to cultivate business relations with the countries in that region. In the present depressed condition of trade we are glad to hear that the enterprise of our manufacturers leads them to seek foreign markets for their productions, and also gratified to report any foreign demand for American products.

Contributions.

The Rebuilt Waterbury Bridge.

Under date of February 7 and 14, 1874, we recorded the failure of an iron bridge on the line of the Central Vermont Railroad near Waterbury.

The bridge having failed under a test load which was supposed to be a safe working load, we think it is due to the iron bridge builders, to railroad managers, and to the public who patronize the railroads and necessarily have an interest in their safety, that a statement of the facts should be made public, and therefore present to our readers the following statement of the facts in the case as they are furnished to us by a person conversant with them:

TO THE EDITOR OF THE RAILROAD GAZETTE:

This statement has been delayed until the bridge could be rebuilt, which has been done, and could have been in use for a reasonable time, now some three to four months, and have been tested and accepted by the managers of the road, which was done Wednesday, October 21, to the perfect satisfaction of all.

The contract was originally made for the building of the bridge between the Central Vermont Railroad Company and the New England Iron Company, of which Mr. E. H. Hewins was at that time engineer in charge of their bridge works. The New England Iron Company also owned and operated a rolling mill which was under the charge of a separate superintendent, and constituted an entirely independent department.

The plans for the bridge, which was to consist of three spans of 140.2 feet theoretical length each, were partially completed and the work commenced in the shops when, in September, 1873, the company suspended business and sold this contract and leased its shops to Mr. Hewins till the first of the following January. The iron for the tension bars had then been partly rolled in the company's mill, samples of which had been thoroughly tested and determined to be of suitable quality. After the transfer of the contract the remainder of the iron from which the tension bars were to be manufactured was rolled in the company's mill. Samples of the lots first rolled having been tested and found to be of satisfactory quality, and being assured that the remainder would be the same in every respect, Mr. Hewins did not consider further tests necessary except for the discovery of flaws, which test was applied to every bar and a record of the same preserved. The bridge was completed and the span which failed had been in use between six and seven weeks when the tests were made, January 31, 1874, which were to determine the acceptance of the bridge by the managers of the road. The tests were made as described by Superintendent Hobart in the Rutland *Herald* and copied in the RAILROAD GAZETTE of February 14, and when the four cars, which with their load weighed 213 tons, were pushed on the north span it gave way, and bridge and load, including two men, were precipitated into the river. Fortunately the parting of the bar which broke first was seen by several persons, and the appearance of this and other fractures caused by the fall determines without possibility of doubt that a very considerable portion of the material was entirely unsuitable for the purpose. The railroad managers, after a thorough investigation by engineers appointed by themselves, became satisfied as to the causes of the failure and instructed Mr. Hewins to proceed to rebuild the bridge. He immediately commenced the work as directed and replaced with new all the tension bars in the three spans, the iron for which was rolled by the Phœnix Iron Company and is their brand of "Best Best." The remaining portions of the material are the same as were in the first structure.

The bridge having been rebuilt under his supervision and in use for some months was on the 21st of October again subjected to the following described tests to determine its final acceptance by the railroad. The tests were made in the presence of Governor Smith, President; Hon. W. C. Smith, Vice-President; J. W. Hobart, General Superintendent; Charles Clarke, Bridge Master; W. E. Babbit, Civil Engineer; Governor Page, of Rutland, and others representing railroad and public interests. The automatic arrangements of Messrs. Clarke and Babbit for registering the deflection and side motion were very simple, reliable and accurate. The deflections and side motions were taken at the center of each span on both sides and the deflection of the north span was also taken about half way between the center of each truss and each end. The deflections at these points were found in each case to be properly proportional to that at the center. In the first column of the accompanying table is given the designation of the spans; in the second column the deflections at the center under a load of 213 tons equally distributed on four cars drawn over the entire length of the bridge by a locomotive; in the third column the deflections under a locomotive weighing 55 tons and moving 10 miles per hour; in the fourth column the deflections under the same locomotive moving 40 miles per hour; in the fifth column the deflections under two locomotives weighing 110 tons and moving 12 miles per hour; and in the sixth column the deflections under three locomotives weighing 165 tons and moving 8 miles per hour. The maximum lateral motion was obtained with a single engine working steam hard and amounted to ⅛ in.:

1st.	2d.	3d.	4th.	5th.	6th.
South span	15-16 in.	7-16 in.	⅛ in.	¾ in.	⅛ in.
Center span	⅞ in.	7-16 in.	⅜ in.	⅝ in.	⅛ in.
North span.	15-16 in.	⅛ in.	⅛ in.	¾ in.	⅛ in.

English Freight Rates and American Second-Class Traffic.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Referring to your note at foot of my article on "Developing Traffic by Low Rates in England and America," published in your issue of October 17, I would like to call attention to the fact, which you inferred but did not directly express, that the British railway companies are able to charge for railroad service more than our railroads do, bulk for bulk and mile for mile, and yet the transportation tax on each article is lighter there than here, because the "distances over which it is necessary to transport the traffic are much shorter in England."

As regards the comparison of passenger rates, we are compelled often to compare first-class American with third-class English, for the reason that there is only the first-class on this side. True, in some cases second-class is provided, but the accommodation is so disgusting that no person of delicacy and certainly no lady could travel in it. The filth of the general run of second-class coaches is a disgrace to our roads, and their use as smoking cars is not to be justified. How repulsive is the idea that because one's means are too slender to bear the expense of a first-class seat, therefore he must be content with a den where first-class men come to exhale vile odors and empty their mouths of filth in the shape of expectoration.

I am aware that on some roads the second-class accommodation is a trifle superior to the average, and that in some cases second-class tickets are good in first-class seats; but I am also aware that in both cases the seeming generosity is in reality a dodge, a "cut." HINDOO.

General Railroad News.

ELECTIONS AND APPOINTMENTS.

—The American Electrical Society was organized at Chicago, October 21, by the choice of the following board of directors: F. L. Pope, A. S. Brown, New York; W. W. Smith, Indianapolis; J. A. Swift, Washington; S. D. Field, San Francisco; Geo. T. Williams, Cincinnati; D. Flannery, New Orleans; C. O. Rowe, Pittsburgh; R. C. Clowry, St. Louis; E. P. Wright, Cleveland; D. H. Bates, Philadelphia; J. J. S. Dickey, Omaha; V. Hucker, Buffalo; G. G. Davis, Baltimore; J. R. Dowell, Richmond, Va. The officers chosen were: President, Gen. Anson Stager, Chicago; Vice Presidents, M. Haskins, Milwaukee; H. P. Dwight, Toronto; James Gamble, San Francisco; John Van Horne, Louisville; G. B. Prescott, William Orton, E. D. L. Sweet, New York; Corresponding Secretary, J. N. Miller, Chillicothe, O.; Recording Secretary, C. S. Jones, Chicago; Executive Committee, Wm. H. Smith, J. J. H. Wilson, George H. Bliss, F. H. Tubbs, C. H. Summers.

—At the annual meeting of the Salem Railroad Company recently, W. F. Reeve, Salem, N. J., was chosen President and D. W. C. Clement, Secretary and Treasurer. The road is leased by the West Jersey Company.

—Mr. C. W. Randall has been appointed Contracting Agent in Chicago for the Pittsburgh, Fort Wayne & Chicago Railway, in place of J. A. Wilson, resigned.

—Mr. T. S. Francis has been appointed General Travelling Agent for the Cincinnati, Hamilton & Dayton and Indianapolis, Cincinnati & Lafayette lines between Chicago and Cincinnati.

—The directors of the Evansville & Crawfordsville Railroad Company have re-elected John E. Martin President and General Superintendent and Frederick Heakes Secretary and Treasurer.

—At the annual meeting of the Cincinnati, Sandusky & Cleveland Railroad Company in Sandusky, O., October 21, the following directors (one-half the board) were chosen: G. J. Anderson, Sandusky, O.; John G. Deshler, Columbus, O.; John Atkinson, J. S. Farlow, J. D. Farnsworth, Boston. The board subsequently elected J. S. Farlow, President; Wm. Wilshire, Vice-President; J. L. Moore, Secretary and Treasurer.

—At the annual meeting of the Vermont & Canada Railroad Company at Bellows Falls, Vt., October 15, the following directors were chosen: Bradley Barlow, Edward A. Sowles, St. Albans, Vt.; J. N. A. Griswold, Newport R. I.; William Mixter, Hardwick, Mass.; Francis A. Brooks, James R. Nichols, Samuel Wells, Boston. Mr. Mixter is the only new director, succeeding Romeo H. Hoyt, who declined re-election.

—At a meeting of the board of directors of the Toledo, Wabash & Western Railway Company in New York, October 24, John T. Martin was chosen a director in place of John F. Tracy, resigned. Mr. Martin was formerly a director. He is not connected with the Canada Southern.

—Mr. Charles B. Bush has been appointed Superintendent of the Grand River Valley Division of the Michigan Central, in place of John Desmond, resigned. Mr. Bush formerly held the same position and left it about a year ago to become Assistant Superintendent of the Jackson, Lansing & Saginaw.

—Hon. Thomas H. Dudley, a director and chairman of the Executive Committee, has been made Chief Executive Officer of the West Jersey Railroad, with full authority to perform all the duties of the President during the absence of that officer.

—At the annual meeting of the Western Maryland Railroad Company in Baltimore, October 21, the stockholders re-elected the following directors: Joshua Biggs, Rocky Ridge, Md.; George W. Harris, Hagerstown, Md.; John K. Longwell, Westminster, Md.; Isaac Motter, Williamsport, Md.; John Welty, Smithsburg, Md. At a joint meeting of the Baltimore City Council held October 20, the Mayor nominated and the Council confirmed the following city directors of the company: Alexander Rieman, Daniel J. Foley, Samuel H. Adams, William Seemuller, E. G. Hipsley, John A. Griffith, William A. Boyd and George M. Boke, all of Baltimore.

—Mr. George F. Hartwell, late of Vallejo, Cal., has been appointed General Superintendent of the new North Pacific Coast Railroad.

—At the annual meeting of the Columbus, Springfield & Cincinnati Railroad Company in Columbus, O., October 22, the following directors were chosen: J. C. Buxton, Springfield, O.; G. J. Anderson, J. D. Chamberlain, L. Moore, Sandusky, O.; J. S. Farlow, N. W. Pierce, J. D. Farnsworth, Boston. The board elected J. S. Farlow, President: J. D. Farnsworth, Vice-President; J. L. Moore, Secretary and Treasurer. The road is leased by the Cincinnati, Sandusky & Cleveland.

—The officers of the Sherbrooke, Eastern Townships & Kennebec Railway Company are as follows: President, Hon. J. G. Robertson; Vice-President, R. D. Morkill; Directors, G. F. Bowen, Charles King, Zerah Evans, George Addie, Rev. T. S. Chapman, Henry G. Bishop, J. B. Brodeur; Secretary and Treasurer, J. A. Archambault. The office of the company is in Sherbrooke, Province of Quebec.

—The Buffalo *Commercial Advertiser* says that the Erie Railway managers have resolved to appoint an Assistant General Superintendent, who is to have his office in Buffalo. The position has been offered to Mr. Henry C. Fiske, who was formerly Superintendent of the Buffalo Division and was lately appointed General Manager of the Buffalo, New York & Philadelphia.

TRAFFIC AND EARNINGS.

The earnings of the Evansville & Crawfordsville Railroad for the year ending August 31 were as follows:

	1874.	1873.	Increase.	Decrease.	P. C.
Earnings	$539,377 39	$562,762 90	.....	$23,385 31	4⅛
Expenses	342,875 44	341,059 69	$1,815 75	.....	0½
Net earnings	$196,502 15	$221,703 21	.....	$25,201 06	11⅜

The earnings were $4,948 per mile in 1874, and $5,163 in 1873. The expenses were 63.57 per cent. of earnings in 1874 and 60.60 per cent. in 1873.

—The earnings of the Denver & Rio Grande Railway (main line) for the second week in October were: 1874, $7,816; 1873, $8,034; decrease, $218, or 2¾ per cent.

—The earnings of the Oil Creek & Allegheny River Railroad for the eight months ending August 31 are reported as follows:

	1874.	1873.	1872.	1871.
January	$64,873 57	$83,302 51	$125,356 21	$160,730 02
February	46,285 65	79,700 17	109,095 99	126,500 10
March	52,613 74	91,651 78	89,680 94	129,590 92
April	66,449 49	97,774 02	101,603 32	124,690 28
May	73,997 47	109,079 73	111,327 70	132,481 33
June	80,724 97	86,584 07	113,996 12	129,026 81
July	76,254 67	106,526 66	107,938 93	146,066 97
August	84,309 28	91,963 00	110,923 59	158,334 47
Total	$545,508 84	$746,483 51	$869,922 80	$1,107,370 90

Decrease, 1874 from 1873, $200,973.70, or 26.92 per cent.; from 1872, $324,413.96, or 37.29 per cent.; from 1871, $561,862.06, or 50.74 per cent.

—The St. Louis *Railway Register* publishes the following report of traffic over the Atlantic & Pacific Railroad for the nine months ending September 30:

	1874.	1873.
Passengers carried	48,820	53,352
Passenger mileage	4,085,065	4,213,127
Tons of freight carried	191,713	174,041
Tonnage mileage	27,823,644	26,787,973

This is a decrease of about 3 per cent. in passenger mileage, and an increase of 3⅝ per cent. in tonnage mileage. For the leased Missouri Pacific the report is as follows:

	1874.	1873.
Passengers carried	559,108	564,243
Passenger mileage	26,055,557	24,264,692
Tons of freight carried	802,703	757,453
Tonnage mileage	103,808,097	123,504,122

The increase in passenger mileage is 7⅜ per cent., and the decrease in tonnage mileage 15⅞ per cent.

—The coal receipts over the various lines at East St. Louis during September were as follows:

Belleville & Southern Illinois, tons	18,036
Illinois & St. Louis	17,612
St. Louis & Southeastern	15,492
Ohio & Mississippi	12,612
Vandalia Line	10,430
Indianapolis & St. Louis	2,372
Cairo & St. Louis	999
Chicago & Alton	436
Total	78,189

—From July 1 to October 6 the wheat shipments from San Francisco to Europe amounted to 3,190,185 bushels, which is about 283,000 bushels more than for the same time last year. For the eight weeks ending with October 22 the wheat exports to Europe from Atlantic ports were 8,261,483 bushels.

—The flour and grain receipts at the six Western lake ports, St. Louis and Peoria, for the week ending October 17, were a little less in nearly all items than for the preceding week, the decrease amounting to about 1¾ per cent. in wheat and 13 per cent. in corn. Compared with the corresponding week of 1873, there was this year an increase of nearly 12 per cent. in flour, 1¾ per cent. in wheat; a decrease of 47 per cent. in corn, 35½ per cent. in oats, and 34 per cent. in barley. The aggregate for the period from August 1 to October 17 for these places shows 1,258,999 barrels of flour this year, against 1,343,699 last, 1,260,220 in 1872, and 1,558,741 in 1871. Of all kinds of grains the receipts were 45,172,700 in 1874, 58,443,975 in 1873, 52,636,744 in 1872, and 52,941,126 in 1871. Thus the movement in grain is the lightest for the four years and about 22⅛ per cent. less than last year.

—The earnings of the Atlantic & Pacific Railroad and leased lines for the third week in October were: 1874, $123,500; 1873, $98,920; increase, $24,580, or 24⅞ per cent.

—The Bingham Canon Railroad carried during September 9,608 tons of freight, of which 1,840 tons were coal and coke and 6,909 tons ore and bullion.

—The Utah Southern Railroad carried in September 9,903 tons of freight. Of this 4,022 tons were ore and bullion, 1,754 tons coal and coke and 1,360 tons charcoal.

—The Utah Central reports 13,085 tons of freight carried during the month of September, the principal items being: coal and coke, 4,565 tons; ore and bullion, 3,938 tons; charcoal, 1,083 tons; lumber, 578 tons.

—The earnings of the Great Western Railway of Canada for the week ending October 2 were: 1874, £23,272; 1873, £31,324; decrease, £8,052, or 25¾ per cent.

—The earnings of the Grand Trunk Railway for the week ending October 3 were: 1874, £45,300; 1873, £23,300; increase, £22,000, or 94 7-16 per cent.

—The earnings of the Philadelphia & Erie Railroad for September were:

Earnings ($1,167 per mile)	$336,149 81
Expenses (61.52 per cent.)	206,802 54
Net earnings ($449 per mile)	$129,347 27

The net earnings for the nine months ending September 30 were: 1874, $677,387.61; 1873, $220,860.30; increase, $456,527.31, or 206.7 per cent.

—The extraordinarily heavy grain shipments of the first half of the calendar year have now been so far balanced by the unusually light shipments of this year's crop that the shipments of the great receiving depots in the West for the calendar year are now just about the same for the two years past. For the period from Jan. 1 to Oct. 17 the shipments of grain of all kinds was 110,873,208 bushels in 1874 and 110,690,451 in 1873. If the slackness in the movement continues, we may expect to see this year show the smaller figures hereafter.

—The six Western lake ports, together with St. Louis and Peoria received during the nine months ending with September about 47,000,000 bushels of wheat. During the same period Great Britain imported about 34,000,000 bushels from the United States, several millions of it coming from California.

—The shipments of refined oil east from Pittsburgh by the Pittsburgh, Washington & Baltimore road for the week ending October 24 were 7,873 barrels, against 4,379 by the Pennsylvania and 3,233 by the Allegheny Valley.

PERSONAL.

—Mr. Charles M. Keller, an eminent patent lawyer who has been engaged in many of the most important suits concerning railroad patents, died at his country seat in Milburn, N. J., October 14. Mr. Keller, who was a native of France but had lived in this country since early childhood, was almost brought up in the Patent Office, his father being employed there, and he himself serving in it when but twelve years old. He had an extraordinary talent for mechanics, and an almost unequaled familiarity with the history of inventions.

Mr. James G. Crocker, General Agent of the Lake Shore & Michigan Southern Railway on the Pacific coast, died in San Francisco, October 14.

—A report comes from Chicago that Mr. James F. Joy is about to resign the presidency of the Michigan Central Railroad Company, and that he has gone to Boston to consult with members of the board as to the choice of a successor.

THE SCRAP HEAP.

British Rail Exports.

For the month of September the British Board of Trade reports exports of railroad iron of all kinds as follows:

	Tons.	Value.
1873	92,140	£1,192,825
1874	61,799	722,140
Decrease	30,341	£470,685

The decrease is 33 per cent. in quantity and nearly 40 per cent. in value. The exports to the United States during this month were 6,923 tons this year against 10,642 last, showing a decrease of 3,719 tons, or 35 per cent. For the nine months ending with september the total exports, and those to the United States:

	1873.	1874.	Difference.	Per ct. of difference.
Total	591,596	637,995	Inc. 46,399	8
To United States	151,972	95,454	Dec. 56,518	44

Last year the United States took about 26 per cent. of the total British exports; this year less that 13⅓ per cent.

Railroad Manufactures.

The Detroit Car Works at Detroit, Mich., have been running steadily since March last, and have now plenty of work, with a fair average force employed.

The Michigan Car Company's works at Detroit, Mich., have a considerable force employed, with the shop full of work.

The National Locomotive Works of Dawson & Bailey, at Connellsville, Pa., have been building narrow-gauge engines for the Des Moines & Minnesota and Galena & Southern Wisconsin roads.

All the hands at the Bessemer Steel Works, Troy, N. Y., have been discharged. If no arrangement is made with the striking workmen ere long, the works will all be closed for the winter.

No Seat No Pay.

Recently on a local train of the Erie road from New York to Paterson a number of passengers were obliged to stand about half the way to Paterson, and consequently several of them refused to give up their tickets to the conductor unless he furnished them with seats. After they had got their seats they insisted that they should not be compelled to pay their fare for the time and distance during which they had no seats. The conductor refused to accede to the proposition, and ejected the resisting passengers near Passaic. Some of the passengers ejected, one a prominent and wealthy manufacturer of Paterson, have begun suits for damages against the company, and intend to test the question fully.

OLD AND NEW ROADS.

Baltimore & Towsontown.

This company asks for proposals for completing the unfinished work of construction of its road, a large part of the grading being already done. It is desired to have the grading done duri .g the fall and coming winter. Proposals will be received until November 10. Any information desired can be obtained from W. S. Shoemaker, Engineer, St. Clair Hotel, Baltimore, Md.

The road, which is to be of 3-feet gauge, will be 7¼ miles long, from Baltimore to Towsontown. It is intended mainly for suburban passenger travel. This road has been counted among completed roads in most lists of narrow-gauge roads for more than a year.

Texas & Pacific.

Trains are now running to Eagle Ford, Tex., 10 miles west of Dallas, on the main line. No contracts have been let west of that point, and it is reported that all the working force available is to be put on the Transcontinental Division between Texarkana and Brookston, leaving the main line for the present.

Meetings.

The following companies will hold their annual meetings at the time and places named:

Baltimore & Ohio, at the office in the Camden Station, Baltimore, November 16, at 10 A. M.

Utica & Black River, at the office in Utica, N. Y., November 11, at 11 A. M.

Dividends.

Dividends have been declaiaed by the following companies:

Boston & Maine, 4 per cent., semi-annual, payable November 14.

Manchester & Lawrence, 5 per cent., semi-annual, payable November 2.

Chesapeake & Ohio.

It is stated that this company has made an agreement with the Baltimore & Ohio and Valley Railroad companies for exchange of traffic and *pro rata* division of through freights. All freight coming from the West on the Chesapeake & Ohio Railroad destined for Baltimore is to be carried over the Valley road from Staunton, and the freights intended for Richmond, which may have to come from the West by the Baltimore & Ohio and the Valley roads are to go to Staunton, and by the Chesapeake & Ohio. Local competition from Staunton will cease.

The contract with the Ohio Steamboat Company for the transportation of passengers from Huntington to Cincinnati has expired and has not been renewed. There are, however, steamboats enough running between those points to keep up all the necessary connections.

The Grant Locomotive Works.

Rumors have been current of the failure or suspension of this concern, which, however, appear to have been exaggerated. The shops have been very busy for some time past on a contract for 65 engines for a Russian road, and employed some 900 men. It was found, however, that all the locomotives could not be delivered in the time required by the contract. The proprietors applied to the Russian Government for an extension, but the answer returned was evasive and unsatisfactory. The penalties, if enforced, would amount to about $200,000, and they did not feel justified in going on with the work under contract with so great a risk hanging over their heads, and had, therefore, been obliged to order the foreman to discharge their workmen until further notice. Mr. D. B. Grant, President of the company, was to sail for Europe this week to arrange matters if possible. If successful, he will telegraph orders to resume work.

Pennsylvania.

Mr. Wm. H. Brown, Engineer of Maintenance of Way, will receive at his office, No. 233 South Fourth street, Philadelphia, Pa., up to November 14, sealed proposals for furnishing 110,000 cross ties for the New York Division of the Pennsylvania Railroad, to be made in accordance with the specifications; 60,000 to be delivered at East Newark, N. J., and the balance (50,000) at Tacony, Pa., seven miles above Philadelphia.

All ties must be made of green or living timber, of good quality, and free from decayed knots or other unsound parts. White oak and rock oak will be the only kinds of timber admitted. Ties must be 8½ feet long, seven inches thick, and not less than seven inches wide; to be hewn on two sides with straight faces, of an even thickness, cut off square at each end, and stripped of the bark. No variation will be allowed in the length and thickness given. No sawed or split ties will received. All ties must be delivered on or before March 15, 1875. They will be inspected, and bills made for all received to the 15th of each month. The payments will be made on or about the 15th of succeeding month. Proposals will be received for the whole or a part of the above. Bidders will state how many they can furnish and at what point they can deliver the ties.

Any further information will be furnished on application as above.

Great Western of Canada.

The report of the directors for the half-year ending July 31, 1874, gives the following results of the operations of the road:

Gross receipts		£563,267
Working expenses, including renewals, rents, taxes and all charges (76.87 per cent.)		436,303
Net earnings		£127,934
Profit on leased lines		£1,082
Surplus from last half-year		4,359
		5,441
Total balance		£133,395
Interest on bonds and debenture stock	£95,715	
Discount on American currency	31,623	
Renewal fund, ferry steamers	2,500	
Alteration of gauge account	9,100	
Balance of cost of repairing damage from floods	1,826	
Balance of interest account	9,511	
Investigation Committee's expenses	3,177	
		153,452
Deficit		£20,057

The dividend on the 5 per cent. prefence stock, which cannot be paid now, but will remain a charge on future net earnings, amounts to £6,269, making the total deficit £26,326. The former statement showed a deficit of £8,100, and this difference is accounted for by the additional charge for steel rails, the Investigating Committee's expenses and adjustment of their accounts.

New Orleans, Mobile & Texas.

Frank M. Ames, trustee, advertises that under a decree of the United States Circuit Court he will sell all of this road lying west of the Mississippi, including the finished road and the partly graded road-bed, the franchises and right of way. The sale is under the terms of the trust deeds dated March 15, 1870, January 1, 1872, and July 1, 1870. It will take place in

New Orleans, November 18, under direction of Francis A. Woolfley, Master in Chancery. The property will be sold in four parcels; first, the finished road from New Orleans to Donaldsonville, 70 miles; second, the unfinished main line from Donaldsonville to the Sabine, with the franchises of the Shreveport and Baton Rouge branches; third, the line from Brashear City to Vermilionville, which is also unfinished; fourth, the line from the Sabine River to Houston, Texas.

Baltimore, Pittsburgh & Chicago.

Accommodation trains have begun to run to Albion, Ind., 143 miles west of Chicago Junction, and 10 miles beyond the late terminus at Avilla.

Erie.

Captain Tyler's report on the condition of the Erie road was published in London, October 28, and a summary of it was telegraphed to New-York. The report says the road undoubtedly possesses great natural advantages, but in order that its resources may be properly developed, several things are necessary, which it specifies as follows:

Double track, with steel rails and durable sleepers, on the whole main line and some other sections.

Some improvements in the gradients of the road.

Fresh extensions and connections.

Change of gauge indispensable.

Improved terminal arrangements to provide sufficient storage for increased traffic.

Iron bridges to be substituted for wooden, when the latter require renewal.

Speculation in coal-fields and all other outside objects should be avoided. No outside rings should be permitted to carry out any of the above-mentioned improvements. Liberal expenditure is required, but the precise amount to be expended from time to time can only be settled after most careful deliberation. There is probably no railway in the world which would better repay such large expenditure than this, if a really good management, supported by a stable constituency of proprietors, can be permanently secured.

Capt. Tyler recommends the organization of a strong committee in England to control arrangements with regard to fresh capital and expenditure generally. The report strongly urges the avoidance of competition wherever possible, and instances the four great railway systems penetrating the Alleghanies, which are carrying produce at manifestly unprofitable rates. Investors are told to make allowance for the depressing effects of last Autumn's panic, and not consider as normal the present year's traffic. The connecting line from Buffalo to Chicago is in an excellent condition. The report enlarges on the advantages of a Canadian connection, via the International Bridge, and concludes as follows:

"We have freely pointed out defects; but it is only fair to state that the same rigid scrutiny of the best of our English railways would show a long list of improvements and expenditures advisable. There is no cause for despair, but much reason to hope for the future of Erie, if only undue competition is avoided and good management secured."

Capt. Tyler estimates the cost of a change of gauge at $8,500,000; improvement of gradients, $3,000,000; iron bridges, $1,500,000, and new depots, $700,000.

The bulk of these sums he thinks might be expended in about three years, and he advises the laying of 20,000 tons of steel rail within the same period.

The new second track on the Buffalo Division is now completed to Attica, N. Y., 31 miles from Buffalo, and the work is being pushed forward towards Hornellsville.

The Buffalo *Commercial* says that the company will soon begin work on a new and commodious depot in that city, and that the intention is to make Buffalo the great objective point of the competition for Western business.

Vermont Central.

When the charter of the Central Vermont Company was passed by the Vermont Legislature two years ago, it was intended that the new company should take the roads included by lease and otherwise in the Vermont Central receivership, and, operating then in the first place as trustee and receiver, should by purchase and consolidation bring them into the hands of one corporation with a compact organization and a manageable capital account. The only step thus far taken to that end is the agreement for the purchase of the Vermont & Canada, and there is much discontent among parties interested, especially holders of securities, at the slow progress made. As an expression of this feeling a bill has been introduced in the Vermont Legislature to incorporate a new company under the name of the Central Railroad Company of Vermont. This company is to be composed of the first-mortgage bondholders of the Vermont Central, who are now the real owners of the property, the stock having long ago disappeared. By the terms of the bill the company is to issue common stock to the amount of the first-mortgage bonds and accrued interest and preferred stock to the amount of such other obligations as it may be judged best to retire in that way. Subscriptions to the common stock are made payable only in bonds.

It is said that the bill has a fair chance of passing.

Macon & Brunswick.

The Governor of Georgia in his order for the sale of this road authorized Dr. Flewellen, the Receiver, to bid at the sale $1,500,000 for the road, in case no higher bid is offered. This amount is that n cessary to secure the State against loss. The sale is to take place December 1.

It is reported that the Central Railroad Company is desirous of securing the road in order to shut off the competition now existing between Savannah and Macon.

Richmond & Trans-Allegheny.

The Citizens' Committee appointed at a public meeting to memorialize the City Council on behalf of this projected road has presented two documents, the majority requesting the Council to make at once an appropriation to enable the company to have the road surveyed. The minority presented a protest on two grounds: first, that it would be injudicious to spend money on a new line from Richmond to Dublin, where the new line proposes to cross the Atlantic, Mississippi & Ohio, the existing line being amply sufficient for all purposes; second, that it would be injudicious to build a road of the proposed gauge (3 feet), which could have no connection with other lines, unless an entire new system of roads of that gauge should be built.

Indianapolis, Bloomington & Western.

A meeting of the first-mortage bondholders was to be held in New York, October 29, for the purpose of securing united action for the protection of their interests.

Second-mortage bondholders are requested to send their addresses to the office of Adrian Van Guideren, No. 54 Wall street, New York, for circulars containing the plan of action adopted by the meeting held October 20.

The Hoosac Tunnel Line.

The Springfield (Mass.) *Republican* says: "A rather discouraging phase of human nature is being brought out just now on the Hoosac Tunnel work. The workmen, and even some in higher station and office, it is said, are so plainly impressed with the idea that the great job is nearly done with that the last work cannot be hastened at all satisfactorily; hence Mr. Walter Shanly has sub-let the finishing touches to smaller contractors. Like every public work of magnitude, the completion of the great bore will cut off supplies from many hangers-on, and such regard its near finish with much apprehension. It is now certain that the tunnel and its approaches cannot be made ready for an opening November 1. There is a delay about one of the west-end bridges, which will not be put up as specified, and hence the whole work is delayed. No arrangements have yet been made for the formal running of the first train through the mountain, which matter will be decided by the Governor and Council, with the advice, no doubt, of the board of corporators. The tunnel arching contract has finally been awarded to Barney N. Farrell, of Greenfield, Mass., and will be begun at once. It will probably take about a year to complete this work. All the brick will be made at the brick-yard west of the tunnel."

Dayton & Southeastern.

It is stated that arrangements have been made to let contracts for the grading of this road from Xenia, O., east by south to Washington, a distance of about 30 miles.

The Wisconsin Railrad Lwao.

The United States Supreme Court has declined to advance on the calender the appeal from the Circuit Court in the Wisconsin railroad cases. This throws all their cases over to next spring.

New Mail Route.

Mail service has been ordered over the Columbia Division of the International & Great Northern Railroad (the old Houston Tap & Brazoria road, lately rebuilt) from Houston, Tex., to Columbia, 52 miles.

The Western Railroad Bureau.

A meeting was held in Chicago, October 27, of representatives of the leading lines from that city west, to exchange views with regard to the Saratoga agreement. Mr. Wadsworth, the Chicago Commissioner, explained the agreement prepared for the Western lines and asked the officers present to sign it. The utmost concession that he could obtain was a promise to interpose no obstacle to the operation of the Saratoga agreement on the Eastern lines. The Lake Shore, Michigan Central and Fort Wayne are the only lines running into Chicago which have thus far signed the agreement. The Northwestern, Milwaukee & St. Paul, Chicago, Burlington & Quincy and Rock Island have agreed to abolish the commission system, but decline to discontinue the issue of return passes to stock shippers. The disposition of the Northwestern companies is to abide by the acts of the Bureau, but not to become parties to the contract.

Carolina Central.

Tracklaying at the western or Charlotte end of the gap between the two divisions of the road has been commenced at Charlotte, N. C. Two parties are now at work, from Beaver Dam west and from Charlotte southeast, both heading towards Monroe.

East Broad Top.

The track is now laid to Robertsdale, Pa., 20 miles southwest from the late terminus at Orbisonia and 32 miles from the intersection of the Pennsylvania road at Mount Union. An excursion train ran through to Robertsdale October 16, and regular trains will soon be put on. The road is of 3-feet gauge and is laid with iron of 45 and 55 pounds to the yard from the Allentown and Cambria Mills. There is one grade of 140 feet to the mile. Extensive coal mines are to be opened at Robertsdale, which is the Broad Top coal region.

Berks County.

The sale of this road has been postponed until October 31. It is probable, however, that it will not take place then, as further legal proceedings were to be taken by some of the creditors to prevent it.

Philadelphia & Reading.

All the shops of this company are now running eight hours per day and five days in each week, making thus 40 hours per week, or two-thirds of full time.

Flint & Pere Marquette.

Track is laid from Reed City, Mich., westward 28 miles, and work is progressing steadily. Trains are running regularly from Reed City to Baldwin. There still remain 20 miles to lay to reach Ludington.

West Jersey.

Arrangements are being made for a reorganization of the several departments of the road, which has been rendered necessary by the increase in business.

Vermont & Canada.

At the annual meeting in Bellows Falls, Vt., October 15, a resolution was adopted constituting the directors a committee for the purpose of receiving and holding the shares to be assigned to them in trust for the holders of the Central Vermont bonds, which are to be exchanged for Vermont & Canada stock. The directors were also authorized to retain as a contingent fund $15,000 out of the first interest payment to be made by the Central Vermont.

New York, West Shore & Chicago.

Some years since, this company purchased 28 acres of land in the Elysian Fields at Hoboken, N. J., to be used as a terminus. But little cash was paid, most of the purchase-money remaining on bond and mortgage. Recently the Hoboken Land and Improvement Company, which sold the land, foreclosed the mortgage, on which over $300,000 interest is unpaid.

Chicago & Pacific.

A cargo of iron for the extension of this road west of Elgin arrived in Chicago, October 24.

Chicago & Alton.

A Chicago dispatch says that at a conference between officers of both companies recently it was resolved that steps should be taken to extend the company's Missouri line, the Louisiana & Missouri River road, from its present terminus at Mexico, Mo., through to Kansas City at once. The line surveyed for this road runs from Mexico nearly due west to the Missouri at Glasgow, crosses there and runs on the south side of the river to Kansas City, being about half-way between the Missouri, Pacific and St. Louis, Kansas City & Northern, and nearly parallel to both.

Atlantic & Great Western.

The United States Rolling Stock Company has begun suit against this company in the Court of Common Pleas at Akron, O., to recover about $300,000 due for rent of equipment.

New York Central & Hudson River.

The Superintendent and Chief Engineer with the division officers are going over the road, making a careful inspection of the new third and fourth tracks where completed, previous to accepting them from the contractors. They will be put in use as fast as accepted.

Rockford, Rock Island & St. Louis.

In the foreclosure suit of the Union Trust Company the United States CircuitCourt gave an opinion, October 20. The court holds that both that and the Nickerson suit were properly brought, and that in such case the jurisdiction is with the court in which suit was first commenced; therefore the United States Court still has jurisdiction in the case, notwithstanding the appointment of receivers by the State court. The order dismissing the suit is set aside, and the amended complaint received. As to the appointment of a receiver, no argument is required, the company having assented to such an appointment by the State Court, thereby admitting its necessity. The parties in interest were given till October 24 to agree upon some suitable person for receiver. It does not appear that any agreement had been come to at that time, as no appointment of a receiver was then made.

New Jersey Midland.

The Middletown (N. Y.) *Press* says that the New York & Oswego Midland receivers have ordered that all through freight coming down the road shall be transferred to the Erie at Middletown, instead of going over the New Jersey Midland. This involves the transfer of all the freight. The reason assigned for the change is that freight shipped by the New Jersey Midland is sometimes delayed in the Pennsylvania yard in Jersey City, and is not delivered in New York as soon as it should be to give satisfaction to shippers.

There continues to be a sharp competition between this company and the Erie for the passenger business coming to Middletown over the New York Midland.

New Orleans & Texas.

The committee appointed to devise a plan to secure the construction of the railroad line from New Orleans to Texas have presented a scheme for approval to the Chamber of Commerce and Cotton Exchange of that city. It is proposed to organize a company and then submit to the voters of the city a proposition that the city guarantee for ten years the interest on $2,500,000 first-mortgage bonds. The bonds are to be issued at the rate of $20,000 per mile on each section of ten miles as the road-bed on that section is ready.

The report was accepted and committees appointed to secure the co-operation of all citizens and to urge on the city authorities the acceptance by them of the plan.

The Brotherhood of Locomotive Engineers.

The Grand International Division met in Atlanta, Ga., October 21, about 150 delegates being present. A welcome was tendered by the Governor of Georgia and the Mayor of the city.

A meeting of representatives from all the roads west of Ohio was held in St. Louis, October 25, to consider the reduction of wages proposed by a number of companies and partially made by the Chicago & Alton. After much discussion resolutions were adopted protesting against the reduction as unjust and uncalled for, and declaring that it will not be submitted to.

Cairo & St. Louis.

A special meeting of the directors was held at East St. Louis, Ill., October 24. The St. Louis *Republican* says that it is understood that among other business presented to the board for consideration was a proposition from Col. Tom Scott and J. S. Morgan, of London. These parties propose to make a joint arrangement with the Cairo & St. Louis Company for the erection at Cairo, Ill., of a union depot and tracks for transfer purposes, for handling freight destined for the South and East, upon the lands of the Cairo & St. Louis Company. They also propose to make these improvements at their own expense, with the further consideration of a loan to the Cairo & St. Louis Company; and to use said improvements for joint purposes. In consideration of doing the work at their own cost and making the loan to the company they demand a half interest in the lands at Cairo, which are the key to that railroad center, and they also ask the control of all freight destined for the East from the line of the Cairo & St. Louis road. The board after discussing the proposal referred it to the contractors, H. R. Payson & Co., for further negotiations.

The iron for the whole of the unfinished portion of the road, 58 miles, is to be delivered by November 10.

A Daring Train Robbery.

As a passenger train on the Southwestern Division of the Chicago, Rock Island & Pacific road was stopping at Cameron, Mo., about 7 o'clock on the evening of October 24, and most of the trainmen and passengers were at supper, six robbers boarded the train and overpowered Chancey Nicholson, the baggage master, left in charge of the train, while the balance of the men were at supper, and ran the train about two miles north. Failing in their attempt to break open the express safe, they stopped the train, jumped off and ran into the woods. Nicholson brought back the train. The whole affair transpired within the space of 30 minutes. Great excitement prevailed and parties were organized to go in pursuit of the robbers, but at latest accounts they had not been caught.

European & North American.

This company has made a formal demand on the State of Maine for 30,000 acres of land formerly granted to the company by the State and then reserved for school purposes; also another demand for 10,000 acres of land on the Penobscot River, ceded by Massachusetts to Maine at the time of separation. These claims will go at once to the Supreme Court, where the company has already been beaten on three of its claims for land grants.

Chicago & South Atlantic.

Ground was broken on the Wabash & Tippecanoe Division of this road at Pittsburgh, Ind., October 20. The section on which work has been begun is 12 miles long from the Toledo, Wabash & Western at Delphi, Ind., north to the Pittsburgh, Cincinnati & St. Louis at Monticello, and comprises some heavy work, including a long bridge over the Wabash at Pittsburgh, and another over the Tippecanoe at Monticello.

St. Paul & Pacific.

The trustees of the various mortgages have revoked the powers of attorney heretofore held by George L. Becker, President of the company, to act for them in the sale of the lands covered by the mortgages. The effect of this is to prevent any sales of land without consent of the trustees of all the mortgages, which will, possibly, practically prevent any sales at all pending the existing foreclosure suit.

Boston & Lowell.

To offset in some degree the expected competition for Lowell business by the Boston & Maine through the new Lowell & Andover road, the Boston & Lowell Company will begin, November 1, to run three through trains daily between Boston and Lawrence, over its own road and the Lowell & Lawrence, which it leases. The distance from Boston to Lawrence by this line is 38 miles, or 11 miles further than by the Boston & Maine.

Lowell & Andover.

The Boston & Maine Company will begin to operate this road and run regular trains, November 1. Seven daily trains will be run between Boston & Lowell and a sharp competition for Lowell business begun. The distance from Boston to Lowell by this route is 29½ miles, or 3¼ miles more than by the Boston & Lowell road.

Parker & Karns City.

This company has offered to extend the road from Karns City, Pa., to Millerstown, provided the people of the latter place will buy $20,000 bonds of the company at 90 cents on the dollar.

Railroads in Mexico.

The message of President Lerdo to the Congress now in session says:

"Congress was informed during its late session that it had become necessary to announce the lapse of the last concession

for the interoceanic and international railroads. [The "Thirteen's" concession.] Doubtless the time since has been too short to permit the reported organization of a new undertaking; but the Executive, so far as depends on him, will not fail to facilitate any plan with requitable conditions, which promises to secure the realization of the desired railroads. The construction of railroads in the interior is of great interest, and to many of our States most important, in order that they may share in the benefits of the railroad already constructed."

Late numbers of the *Two Republics* notice a rumor that a German company will apply for a concession, combined with certain colonization projects; also that on the 26th of September a bill was read a second time in Congress authorizing Messrs. Ruelas, Lopez, Portilla and others to construct a railroad from Mexico to the Pacific with branches to the interior.

Martinez & Livermore Valley.

Arrangements are being made for the organization of a company to build a narrow-gauge railroad from Martinez, Cal., to Livermore, a distance of 35 miles. It is said that a very favorable route exists and that the road can be cheaply built.

St. John's.

Iron rails are being laid on this road, and a locomotive has been purchased. New cars are also to be put on, and the road generally put in good condition. About five miles of iron is down. The road runs from St. Augustine, Fla., to the St. John's River at Tocoi and has heretofore used wooden rails and mule power.

Central, of Iowa.

In the foreclosure suit of Alexander and others against this company the United States Circuit Court has overruled the demurrer put in by defendants and holds that the plaintiffs may continue the suit, although a majority of the bondholders have not united in it.

Blue Ridge.

The foreclosure sale of this road took place at Charlestown, S. C., October 22. The property was purchased by R. K. Scott, as agent for the bondholders, for $55,000. The sale includes about 33 miles of finished road, from Belton, S. C., to Walhalla, some very costly unfinished grading and tunnels in South Carolina and Georgia, and the franchises of the company in North and South Carolina and Georgia.

Washington City & Point Lookout.

This company has made a contract to sell the line known as the Baltimore, Washington & Alexandria Branch to the Baltimore & Ohio. This branch extends from the Baltimore & Ohio six miles from Washington, to Shepherd, opposite Alexandria. It was built for and has always been used by the Baltimore & Ohio. The stockholders of that company will vote on the agreement of purchase at the annual meeting next month.

Sharpsville & Oakland.

Rails are being laid on an extension from Oakland, Pa., to Bethel, about three miles.

Boston, Hartford & Erie.

For some time past the transfer books of this company have been closed. This has been the cause of much comment, and the result has been that at a recent meeting of the Governing Committee of the New York Stock Exchange the following action was taken:

"*Resolved*, That the Secretary of the Stock Exchange be instructed to notify the Boston, Hartford & Erie Railroad Company that unless their books are opened within ten days, the stock will be stricken from the list."

The Connecticut courts some time since ordered the dissolution of this company, so far as its existence depended on the charter from that State.

New York & Canada.

Trains are to begin running from Whitehall, N. Y., north to Port Henry, 41 miles, November 1. Of this 24 miles has been built by this company, and the remaining 17 miles, from Ticonderoga to Port Henry, is the old Whitehall & Plattsburg road, which was bought by the New York and Canada.

The Port Henry Tunnel is nearly through and work on the northern part of the road is progressing well.

Oregon & California.

The Frankfort committee for the protection of the bondholders announces that the net earnings, together with the contribution by Ben Holladay, enable the company to pay ¾ per cent. on the coupon due October last, in accordance with the agreement with Ben Holladay, who has agreed to advance a certain sum when the net earnings are not enough to pay a limited portion of the interest.

Galena & Southern Wisconsin.

On the 2d of October nine miles of track was laid on the road from Galena northward. The people of Lancaster, Wis., are endeavoring to have the road extended from Platteville to that place, which will be done if they will pay the cost of making the road ready for the iron.

The American Electrical Society.

An adjourned meeting of persons interested in the formation of a society of electricians was held in the Palmer House, Chicago, October 21. Mr. C. H. Haskins called the meeting to order and stated its objects, which are an interchange of knowledge and the professional improvement of members, the advance of electrical and telegraphic science and the establishment of a central point of reference. The constitution adopted provides for an annual meeting on the third Wednesday of October, place to be designated by the executive committee; that the headquarters shall be in Chicago, and that the association shall be called the "American Electrical Society." A permanent organization was effected.

Louisiana & Missouri River.

The lease of this company's road to the Chicago & Alton (which was made before any part of the road was completed) provided that the rental should be a proportion of the gross earnings, but not fall below a certain minimum. But this contract required the lessor to complete a line from the Mississippi to Kansas City. As its road is not half so long as the one contemplated, the lessee has contended that it should not on its part be bound by the contract for rental, and the question was submitted to arbitration, the result of which is now announced. The Chicago & Alton is to pay the proportion of gross earnings named in the lease, but shall pay only that proportion, however small it may be, and not be compelled to pay any minimum amount. The road makes a Kansas City connection by way of Moberly and the St. Louis, Kansas City & Northern road, which is perhaps quite as direct as the proposed independent line would have been; and under the circumstances it is probably fortunate for both lessor and lessee that the leased road was not completed through, the traffic not being sufficient to support such a line at present, though the terms on which the connection is made with the St. Louis, Kansas City & Northern has much to do with that.

Oil Freights.

A Philadelphia statement, said to be official, says that at a meeting of representatives of the trunk lines in New York last week, after the discussion of objections to the new oil rates, it was decided that any reduction was impracticable, and that the principle of equal through rates from all points upon which the present tariff is based is the only one which could be maintained, with or without an agreement between the companies. From all information which had been received there was every reason to believe that this principle would commend itself to the shipping public, as its workings were more clearly seen and comprehended.

On the other hand there is much excitement among producers and shippers in the oil regions. Several meetings have been held which have been largely attended, and a committee appointed to devise ways of breaking the combination of the trunk lines. It is proposed also to test the legal questions involved and abundant funds have been pledged to be used for that purpose if needed.

The Pittsburgh refiners have begun in earnest to ship over the Pittsburgh, Washington & Baltimore, which, with the Baltimore & Ohio, is not in the combination and has, indeed, carried very little oil heretofore. Arrangements are being made by that line to carry 5,000 barrels per day, and the facilities for shipping are being largely increased. The refiners have secured right of way through Pittsburgh for the laying of pipes to carry both refined and crude oil to its tracks.

Peoria & Rock Island.

In the United States Circuit Court in Chicago, October 20, Charles M. Osborn, as attorney for V. G. Thomas, D. R. Thomas and T. B. Simpson, filed a bill for foreclosure of the first mortgage of $1,500,000 on this road. The main points in the complaint are that the bonds were sold by extravagant representations as to their value; that the mortgage was not really a first lien on the entire property, there being a prior incumbrance of $150,000 on the Coal Valley property; that the funds have been misapplied, the road poorly built and insufficiently equipped; that the stock is controlled by parties interested in other companies and the road is worked so as to benefit those companies, to the detriment of its local business. The plaintiffs ask for the appointment of a receiver and an injunction against the present management.

At a meeting of bondholders in New York, October 22, the committee previously appointed presented its report. The committee recommended that the directors be allowed to continue to run the road under the supervision of an advisory committee appointed by the bondholders. In case the payment of interest is not resumed and the affairs of the company put on a sound footing in two and a half years, then the bondholders are to be allowed to take peaceable possession of the property. After much discussion this report was adopted. Messrs. Remington Vernam and W. O. McDowell, of New York, and C. C. Hussey, of Pittsburgh, were appointed as the advisory committee, the trustee, Mr. C. L. Frost, being made a member *ex officio*.

A Southern Railroad Meeting.

A meeting was held in Atlanta, Ga., October 22, at which most of the leading Southern lines were represented, with delegates from several States and cities. A report was presented by Mr. Nelson Tift, who was some time since appointed agent to arrange for direct trade from Savannah to Europe. Arrangements have been made with the White Star Line (New York to Liverpool) for through bills and a through rate from Savannah to Liverpool by way of New York. The companies concerned have agreed to make through rates over their lines from leading Southern and Western points to Savannah.

Kansas City, St. Joseph & Council Bluffs.

An injunction has been issued at the suit of the City of Council Bluffs, Ia., to restrain this company from operating its road or selling tickets beyond the terminus of the road at Council Bluffs and compelling the company to receive and discharge all passengers and freight at Council Bluffs. This will prevent the running of its cars across the Missouri bridge to Omaha.

Southern Pacific.

Several officers of the road have been passing over the line to Los Angeles for the purpose of locating the road from Bakersfield, Cal., through the San Gorgonio Pass to Spadra, the present terminus of the southern section. It has been decided to build 20 more miles this year south of Bakersfield on the San Joaquin Valley, which will carry the road to the eastern end of the Tehachape Pass, about 100 miles from Spadra. This 100 miles includes some of the heaviest work on the line.

Most of the right of way has been secured and grading has been begun on the new line into San Francisco by way of San Mateo and the Potrero.

It is rumored that the company is negotiating for a portion of the water front at San Diego, and that the intention is to build an extension of the Anaheim Branch southward to San Diego.

Helena & Iron Mountain.

Work is reported to be in progress on the grading from Helena, Ark., northwestward.

California Pacific.

In the United States District Court in San Francisco, October 21, attorneys for a large number of German bondholders filed a petition in bankruptcy against the company and asked for an injunction to restrain the company from further mortgaging or encumbering the property. The complaint rehearses the history of the company and repeats the statement heretofore made as to its management.

Kansas Pacific.

This company has announced that the certificates of indebtedness to be issued in exchange for coupons according to agreement would be ready October 26. One-half the November coupons upon the Extension bonds, with interest upon the portion funded, will be paid November 1.

Boston & Albany.

The straightening of the line through the towns of Needham and Weston, Mass., has been partly completed and the north track laid on the new road-bed. The transfer of the south track to the new line is now in progress.

Great Southern, of New Brunswick.

Towns along the line have voted to raise the necessary funds for a complete survey of the road. An offer has been made to build the road for $20,000 per mile, of which $5,000 is to be the provincial subsidy and the rest bonds of the company, the line to be of 3 feet 6 inches gauge. It is to run from St. John, N. B., westward, following the general line of the sea-shore to Calais or Eastport, Me., where it will connect with the projected Bangor & Calais Shore Line.

Delaware River & Bound Brook.

Some weeks since a contractor who had done some work for the National Company and subsequently for the Union Railroad Company (which was intended to be the successor of the National) took possession of a section of road-bed which had been partially graded by him and refused to give it up to the Delaware River & Bound Brook Company, which has located its road on the same line. Force was used and for a time there was some excitement. It is now stated that the trouble has been settled and the contractor's claim compromised.

There seems to be some little uncertainty as to the title to this road-bed. The National Company, as organized in New Jersey under the general railroad law, failed to begin work within the time required by the law and consequently forfeited whatever franchise it had. It made contracts for nearly all the right of way, but, we believe, failed altogether to make the payments called for by those contracts. Subsequently the Union Railway Company was organized and took possession of the National road-bed and right of way and what grading had been done under the so-called Stanhope charter, which after all was very little in reality, that work having been spread out so as to make a considerable show with a very small expenditure. The Union Company set contractors at work at one or two points, but, it is claimed, only made a pretense of work in order to comply with the letter of the law and then stopped. The Delaware River & Bound Brook has taken up the right of way on the same line, and has thus far, we are informed, made the payments as agreed. It is not, however, probable that the question of title will be again raised, unless, as in this case, there is another contractor who has an unpaid bill for grading done, and thinks he can best recover some part of it by making trouble.

Delaware, Lackawanna & Western—Morris & Essex Division.

Surveys are being made for a new line through Newark, N. J., with a view to avoiding the reversed curve and heavy grade by which the depot is approached from the west. The road now crosses Broad street, the principal street in the city, at grade, and it is desired to do away with this and cross on a bridge, and also to build a depot more nearly adequate to the large business of the road than the present one. It is intended, too, if possible, to cut down the very heavy existing grade at Roseville, and to straighten the line from that place to Newark. No definite line has yet been located, but it is thought that a new bridge over the Passaic will be needed, as well as a re-location of the line east of the river. In any event the improvement will be a very desirable one, but it will involve the expenditure of a large sum of money. The right of way through the city will be very costly.

Burlington & Southwestern.

In the foreclosure suit in the United States Circuit Court, October 23, Judge Dillon appointed Gen. N. P. Baker Receiver of this road. The Court instructed him to demand possession of the road from the Receiver appointed by the Iowa District Court in the suit of E. B. Ward against the company, and, in case he refuses, from the court itself.

Chicago, Dubuque & Minnesota.

The trustees appointed under the agreement between this company and the Chicago, Clinton & Dubuque and the bondholders of both companies, request all holders who have not yet done so to send in their answers to the circulars issued as soon as possible. Circulars can be obtained by applying at the office of Charles J. Bowditch, No. 28 State street, Boston.

Columbus, Chicago & Indiana Central.

In the United States Circuit Court in Cincinnati, Oct. 21, the attorneys of the Pennsylvania Railroad Company filed a petition for the foreclosure of the second-mortgage. A writ was issued returnable November 3, and the answer of defendant will be heard November 17.

Baltimore, Pittsburgh & Chicago.

The road has been opened for business to Avilla, Ind., 133 miles west from the junction with the Lake Erie Division of the Baltimore & Ohio, to which point the laying of the track has been already noted. The rest of the line will probably be opened November 10.

Oil Creek & Allegheny River.

The Receiver has communicated to Mr. T. S. Fernon the following statement made by the Auditor of the financial condition of the company July 18, 1874, the date when the Receiver took possession:

ASSETS.

Construction and equipment	$9,609 837 91
Contingent fund	50,358 66
Jay Cooke & Co	5,881 49
Defaulted agents	26,612 01
Empire Transportation Co	18 994 99
Tidioute & Titusville Railroad Company	6,500 00
Titusville & Petroleum Center Railroad Co	99,046 02
Individuals and companies	88,900 44
Fuel and material on hand	40,691 51
Due from railroad companies	99,571 69
Due from agents, etc	21,039 45
Cash in hands of Treasurer	72,443 64
Total	$10,136,777 65

LIABILITIES.

Capital stock		$4,959,450 00
Oil Creek Railroad mortgage bonds	$580,000	
Warren & Franklin Railroad bonds	1,500,000	
Consolidated bonds	1,100,000	
Union & Titusville Railroad bonds	500,000	
		3,680,000 00
Profit and loss account		1,026,507 32
State of Pennsylvania		6,440 00
Titusville Pipe Co		13,959 93
Unpaid vouchers		145,186 77
Bills payable		17,780 53
Due railroad companies		287,453 05
Total		$10,137,777 65

The rapidly increasing business of the road has caused the Receiver to take off all the passenger trains between Irvineton and Oil City. One mixed train daily is now run over this part of the line.

ANNUAL REPORTS.

Cumberland & Ohio.

This company is engaged in constructing a railroad from the Ohio River, opposite Madison, Ind., southward through Kentucky to the Tennessee line, and thence southeast to Nashville, Tenn. The length of the line as surveyed is 249 miles. Through Kentucky the line is nearly parallel with that of the Louisville & Nashville, and generally from 30 to 40 miles to the eastward. A branch from Taylorsville to Chattanooga and a southern extension to Tuscaloosa, Ala., have been projected, but nothing definite has been done.

The report of the Treasurer for the year ending April 30 shows an expenditure of $968,550.84, of which $710,039.61 was for grading and masonry, $80,359.92, discount, commissions and interest, and the rest for engineering, right of way, balance on old contract and general expenses. To meet this expenditure $1,056,100 of county bonds and accrued interest have been used, leaving $1,917,238 in county bonds to be expended in construction of the road. The $1,056,100 of bonds disposed of have netted the company 74.47 per cent. on the dollar. The report shows that less than 10 per cent. of the individual subscriptions to the capital stock has been collected.

Mr. E. F. Falconnet, Chief Engineer, reports that the location has been carefully revised, and the maximum grade cut down to 66 feet to the mile, except on three sections, one from the Ohio River to the top of the plateau, four miles; one from Lebanon, Ky., to the south side of Little Barren River, 47 miles, and for four miles in the ascent of Tennessee Ridge. For these sections the maximum grade is 90 feet. The maximum curve is eight degrees.

The condition of the work at the close of the year was as follows:

From Greensburg to Lebanon, Ky., 31⅛ miles, the grading and masonry was complete except on five sections. The tunnels at Greensburg and Muldrough's Hill (1,900 feet long) were completed, and the delivering of ties has been begun. Between Taylorsville and Shelbyville, 16 miles, the road-bed was

nearly finished, and between Shelbyville and Eminence several sections were completed. From Eminence to Bloomfield, 38 miles, the work was well advanced. The work through Washington County had been delayed by a law-suit.

On the Second or Southern Division, from Greensburg to Nashville, work from the Tennessee line to Gallatin is well advanced. The two tunnels at Tennessee Ridge were nearly completed. From the State line to Scottville, Ky., the grading has been let, besides several sections between Scottville and Glasgow. It was believed that by the end of the present year 155 miles of the road would be ready for the rails and nearly all the rest under contract.

The Engineer's report contains a very full description of the line of the road and its present condition.

Cincinnati, Sandusky & Cleveland.

This company owns a line from Sandusky, O., south by west to Dayton, 155 miles, with a branch from Carey, O., west to Findlay, 15¼ miles. It also leases the Columbus, Springfield & Cincinnati road, from Springfield, O., east to Columbus, 45 miles. Of the main line, 25 miles, from Springfield to Dayton, are leased to the Cincinnati & Springfield and subleased to the Cleveland, Columbus, Cincinnati & Indianapolis for 35 per cent. of the gross earnings. The mileage worked by the company is thus 190¼ miles, of which 45 miles are leased.

The property is represented as follows:

Preferred stock and scrip ($197.45 scrip)	$429,037 45
Common stock and scrip	4,005,750 00
Total stock ($25,010 per mile owned)	$4,434,787 45
Bonded debt ($14,197 per mile)	2,420,512 40
Total ($40,207 per mile)	$6,855,299 85

The floating debt amounts to $363,486.47, to offset which the company holds assets to the amount of $351,062.17. The deficit, it is believed, will be more than made up when the property recovered from the defaulting President, Sloan, is realized.

The earnings of the road for the year ending June 30 were as follows:

	1874.	1873.
Passengers	$213,688.41	$210,307.35
Freight	440,811 33	455,685.41
Other sources	76,637.47	74,779.02
Total earnings	$731,137.21	$740,771.78
Operating expenses	533,179.91	565,060.81
Net earnings	$197,957.30	$175,710.97
Rental from C. & S. R. R.	69,214.23	64,343.82
Total net earnings	$267,171,53	$240,054.79
Gross earnings per mile	$3,837.99	$3,888.57
Net " "	1,039.15	922.31
Per cent. of expenses	72.92	76.28

The year showed a decrease of $9,634.57, or 1.30 per cent., in earnings; a decrease of $31,880.90, or 5.64 per cent., in expenses; and an increase of $22,246.33, or 12.66 per cent., in net earnings. The prostration of the iron business during the year injured the traffic of the road seriously.

The freight-train mileage during the year was 399,274; passenger train, 318,591; other trains, 61,804; total 779,669 miles. The number of passengers carried was 255,467; passenger mileage, 6,613,488. The tonnage of freight carried was: through, 159,536; local, 161,810; total, 321,346 tons.

During the year 1¼ miles new iron, 7¼ miles of re-rolled iron and 25,785 new ties have been put in the track. The bridges are generally in good condition, but many culverts need repair. Much fencing will have to be built during the present year to comply with law. New passenger houses are badly needed at Forest and Tiffin.

The equipment has been generally kept in good order. Much trouble has been caused by the use in the engines of water strongly impregnated with lime. During the year one new engine has been bought and 17 old freight cars broken up. The equipment now consists of 32 engines, 20 passenger, 3 sleeping and 6 mail and baggage cars, 33 box, 66 stock, 168 flat and 338 coal cars; 46 hand and 10 push cars.

LOCOMOTIVE RETURNS, JUNE, 1874.

Master Mechanics of all American railroads are invited to send us their monthly reports for this table.

NAME OF ROAD.	Number of miles operated	Number of Locomotives in service	Mileage	No. Miles run to Ton of Coal	No. Miles run to Cord of Wood	No. Miles run to Pint of Oil	Average No. of Freight Cars Hauled	Cost per Mile in Cents for Repairs	Cost per Mile in Cents for Fuel	Cost per Mile in Cents for Stores	Cost per Mile in Cents for Miscellaneous	Cost per Mile in Cents for Engine'rs, firemen and wipers	Cost per Mile in Cents for Total	Av'ge cost of Coal, per ton	Av'ge cost of Wood, per cord
Allegheny Valley		61	150,555	36.90		21.45		4.81	4.89	0.82		7.70	18.22	$1.60	$3.70
Atlantic & Great Western (First & Second Div.)	228	80	232,984	45.96		15.30		4.90	5.74	0.58	0.73	6.37	18.32	2.52	3.31
" " (Third & Fourth Div.)	203	80	103,912	45.96		18.25		6.07	5.74	0.46	0.84	6.20	19.31	2.52	3.31
" " (Mahoning Division)	113	59	144,392	45.96		17.15		3.49	5.74	0.46	0 51	5.86	16.06	2.52	3.31
" " (Shenango & Allegheny)	38	9	20,678	71.30		25.06		0.58	2.86	0.46	0.69	5.81	10.40	2.00	2.00
California Pacific	148	10	24,810	69.69	95.22	27.29		7.58	10.32	0.50	0 67	6.81	25.88	7.75	5.50
Central Pacific (Western Division)	173.4	42	106,950	42.34		18.64		6.19	19.09	0.75	0.21	8.44	34.68	7.46	4.73
" " (Sacramento Division)	119.5	40	93,746		27.77	17.01		7.96	17.06	0.82	0.73	8.36	34.90		4.73
" " (Truckee Division)	204.5	24	65,465	35.47	50.00	17.43		4.78	19.29	0.69	0.70	8.93	34.39	7.46	4.73
" " (Humboldt Division)	236.6	20	57,505	49.10		17.52		7.88	17.71	0.70	0.50	8.08	34.87	7.46	4.73
" " (Salt Lake Division)	182.8	21	60,276	40.39		14.72		9.25	17.58	0.84	0.64	8.02	36.33	7.46	4.73
" " (Oregon Division)	151.48	9	22,075		41.26	21.45		9.90	11.46	0.69	0.52	6.51	29.08		4.73
" " (Visalia Division)	188.3	9	21,840	48.22	50.00	17.25		8.98	16.37	0.77		8.88	35.00	7.46	4.73
Chicago, Burlington & Quincy		290	690,129	40.37		14.04	19.97	6.69	6.89	0.61		7.91	22.10	2.70	4.25
Chicago, Rock Island & Pacific (Illinois Div.)		93	191,470	41.43		17.32		4.11	6.79	0.60		7.06	18.56	2.72	3.80
" " (Iowa Division)		73	167,514	41.45		15.29		4.53	6.81	0.70		7.22	19.26	2.72	3.80
" " (Southwestern Div.)		44	109,035	43.54		12.73		3.98	6.45	0.79		6.28	17.50	2.72	3.80
Cleve., Col., Cin. & Ind. (Columbus Div.)	138	56	135,244	53.18	43.23	33.69		2.24	6.17	0.56		7.40	16.37	3.00	3.50
" " " (Indianapolis Div.)	207	63	175,863	45.21	47.29	25.48		4.26	6.73	0.57		7.61	19.17	2.75	3.50
" " " (Cincinnati Div.)	130	28	73,279	40.26		25.64		3.77	6.99	0.54		8.20	19.50	2.62	3.50
Cleveland & Pittsburgh		88	192,036	56.85		16.39		3.96	4.50	0.73		6.86	16.05	2.25	1.95
Del., Lacka. & West. (Bloomsburg Div.)	80	26	56,195	47.86		27.79		6.81	4.49	0.72		6.51	18.53		
Denver Pacific			17,956	57.69		14.55		3.18	5.98	0.45		5.94	15.51	3.50	6.21
Flint & Pere Marquette			80,874		58.41	25.17		3.03	7.70	0.60		6.39	17.72		4.50
Illinois Central (Chicago Division)	252.5	62	164,184	42.25		16.69	19.42	3.20	4.84	0.34		6.66	15.04	1.90	4.35
" " (South Division)	230.75	33	79,668	40.39		12.28	16.16	7.17	5.01	0.46		6.79	19.43	1.90	4.35
" " (North Division)	225	51	98,304	31.89		12.88	16.54	8.79	6.27	0.45		6.95	22.46	1.90	4.35
" " (Iowa Division)	401	39	86,308	35.51		17.06	11.57	8.88	6 82	0 34		6.87	27.91	2.30	5.95
Indianapolis, Bloomington & Western		67	161,845			25.00		3.94	6.22	0.66		8.35	19.17	1.99	3.18
International & Great Northern															
Kansas Pacific		88	161,908	44.73		12.78		4.67	8.59	0.53		6.53	20.32	3.75	4.24
Kansas City, St. Joseph & Council Bluffs*		24	59,609	47.80		30.00	21.10	6.69	6.90	0.70		7.60	21.80	3.00	4.00
Lake Shore & Michigan South. (Buffalo Div.)†		92	179,175	53.38	41.42	15.81		5.11	6.59			6.52	18.22	3.50	3.50
" " (Erie Div.)†		113	217,431	46.94	68.70	21.37		6.24	7.52			6.05	19.81	3.50	4.00
" " (Toledo Div.)†		79	156,213	37.65	51.72	12.87		5.23	9.37			7.11	22.21	4.00	4.00
" " (Mich. South. Div.)†		210	435,691	49.28	59.57	19.86		5.55	7.85			7.22	20.62	4.50	3.50
Louisville, Cincinnati & Lexington			81,789	50.00		12.60		5.95	9.33	0.86		8.29	24.42	4.23	4.15
Leavenworth, Lawrence & Galveston															
														per bu.	
Northern Central (Elmira & Canandaigua Div.)		44	90,530	27.66		15.15		6.50	9.50	0.90			16.90	0.09	3.11
Pennsylvania (New York Division)	119.9	107	255,816	34.15		11.76		5.40	16.00	1.20			22.60	0.19	6.96
" (Amboy Division)	154.2	58	103,658	49.91		15.20		3.50	11.00	0.90			15.40	0.19	6.96
" (Belvidere Division)	102.5	34	68,813	44.02	44.64	11.79		3.70	12.30	1.30			17.30	0.19	6.98
" (Philadelphia Division)	204.3	160	404,407	36.50		15.43		3.10	4.90	0.80			8.80	0.06	3.28
" (Middle Division)	131.6	135	309,956	37.65		22.94		7.20	4.70	0.60			12.50	0.06	3.28
" (Pittsburgh Division, East End)		72	144,794	25.03		14.16		7.40	7.00	0.80			15.20	0.06	3.28
" (Pittsburgh Division, West End)		99	249,366	35.97		15.20		8.30	4.90	0.80			14.00	0.06	3.28
" (Tyrone Division)	100.3	24	44,604	25.44		33.11		3.80	7.00	0.50			11.30	0.06	3.29
" (West Pennsylvania Division)	103.6	27	52,961	44.44		30.30		4.30	4.20	0.50			9.00	0.06	3.28
" (Lewistown Division)	62.5	7	12,600	57.88		23.81		4.90	3.20	0.60			8.70	0.06	3.31
" (Bedford Division)	56.5	5	8,485	54.24		31.25		3.00	3.40	0.50			6.90	0.06	3.29
														per ton.	
Pitts., Fort Wayne & Chicago (Eastern Div.)	468.9	184	412,180	39.45		15.50		4.91	5.56	0.85	0.72	6.60	18.64	2.19	2.19
" " " (Western Div.)	280	114	286,672	49.50	45.40	14.50	20.60	4.20	5.50	0.50		6.50	16.70	2.70	3.25
Pitts., Cin. & St. Louis (Little Miami Div.)		39	94,847	46.40		11.55		4.50	5.90	0.80	2.40	7.50	21.10	2.27	3.47
South Carolina															
St. Louis & Southeastern (St. Louis Div.)			46,228	52.00		15.90		6.20	3.80	0.80		7.90	18.70	1.92	
" " (Nashville Div.)			38,112	46.40		8.09		6.40	4.00	1.00		8.50	19.90	1.87	
Toledo, Peoria & Warsaw	250	45	79,041	39.10		20.00		6.70	5.20	0.50		7.50	19.90	1.90	3.5
Stockton & Copperopolis	49	2	3,164	59.70		10.51		49.02	20.07	1.60		11.22	81.81	12.25	5.00
Cleve., Col., Cin. & Indianapolis (six mon ths ending June 30)	475	152	2,359,837	44.32	46.41	28.18		3.67	7.12	0.55		7.55	18.89		

* Three empty cars counted as two loaded ones.

† Switching engines allowed six miles per hour.

The Preservation of Wood.

A work recently published in France, entitled "A Treatise on the Preservation of Wood, Foods, and Various Organized Matters, by Maxime Paulet, Chemist," recommends for wood sulphate of copper and creosote.

Mr. Paulet resumes as follows his opinion concerning the use of these two substances:

1. So far as the *sulphate of copper* is concerned:

That this salt is poisonous for the vegetable and animal parasites which appear at the beginning of all organic decomposition;

That the quantity of salts of copper should be excessive when the wood is intended to be immersed in water or buried in a moist soil, because the water dissolves this salt slowly; and since sea water enters into combination with it still more rapidly, it should be excluded from use for wood used in the sea.

That there is, in wood impregnated with the salts of copper, a portion of the sulphate closely united with the liqueous tissue and another portion in excess remaining free; that this latter portion dissolves first, and, carried off by the exterior fluids, only retards the loss of the metallic salt combined with the wood; but this combination itself, although more stable, does not escape removal, accelerated or retarded according to the rapidity and ease with which the dissolving liquid is renewed.

That, on the contrary, the quantity of metallic salts should be diminished in wood intended for constructions in the open air, in order to prevent the mechanical effect of intra-vascular crystallizations.

2. As regards creosote oil. That it is beyond doubt that the petroleum products, containing phenic acid, are preferable to the metallic salts for wood exposed to sea water, because naphtaline, and especially phenic acid exercise an antiseptic action, coagulate the albumen, and thus obstruct the circulation of the sap or blood of parasites.

That the volatility and the solubility of these preservative agents would render their antiseptic action temporary only, if the more fixed and thicker oils which accompany them did not inclose and retain the preceding substances, at the same time obstructing all the pores of the wood, and rendering difficult the access of dissolving liquids and destructive gases.

But that, on the other side, grave objections have been raised, from a practical point of view, either because of the restricted production of these oils, which is not sufficient for a general use of them, or because the wood thus impregnated offers great danger from fire, this wood once on fire being unextinguishable; that on the contrary sulphate of copper, like all the metallic salts, renders the wood uninflammable.

PRESERVATION OF TIES BY PARAFFINE.—From the *Polytechnisches Centralblatt* we translate the following account of a process for treating ties and other timbers to preserve them from decay. Our supply of petroleum is so abundant and it is afforded at so low a price, that this country ought to have a great advantage in the use of any process which employs this material or any of its products:

In 1862 Messrs. J. and G. Leuchs advised the boiling of railroad ties in paraffine, or coating them with this substance. This operation did not seem practicable to Mr. Hock. In order to effect impregnation it is necessary to fuse the paraffine, and vapor of petroleum seemed to him the dissolvent best suited for this purpose. The ties are introduced into an iron cylinder or reservoir, heated on the outside by a steam jacket. The wood, already as dry as possible, is raised to the highest degree of dessication by the introduction of steam into the jacket, and when no more vapor escapes from it the solution of paraffine is introduced into the cylinder by a tube and compressed air. This cylinder has a refrigerating coil which discharges into a closed receiver. Then steam is let into the jacket again. The liquid waters boiling, and the vapor of petroleum gas not being able to escape, the pressure inside of the cylinder rises and is permitted to reach 75 to 100 lbs. per square inch; at this pressure the wood is completely impregnated with the liquid.

When this action has been prolonged sufficiently the heating is stopped and the operator waits until the pressure has fallen to a minimum, and the excess of paraffine is drawn off into the reservoir. Now, in order to collect also the dissolvent absorbed by the wood, it is again heated. When the remainder of the vapor of petroleum has been dissolved, air is blown into the cylinder in order to drive out the gases which might incommode the workmen who take out the wood.

The paraffine remains distributed minutely within the wood between the ligneous fibres, envelops them, on melting, with a thin coating, and at the same time fills the pores and the cellular intervals. The wood is then guaranteed forever against moisture, while the dissolving of sulphate of copper, chloride of zinc, coal oil, etc., which have been recommended, are dissolved and carried off by water. Nails do not rust as in wood impregnated with metallic salts, and fragments of the preserved wood keep their value as fuel, while those of sulphated or zincked wood burn with difficulty.

The Master Mechanics' Association.

The following circulars of inquiry have been issued by the committees having to report on these subjects:

NARROW AND BROAD-GAUGE ROLLING STOCK.

DEAR SIR: The Committee appointed at the last meeting of the American Railway Master Mechanics' Association on the subject of "Narrow and Broad-Gauge Rolling Stock" beg leave to request your answers to the following questions:

1. What is the gauge of your road?
2. What and how long are the maximum grades on your road?
3. What is the minimum radius of the curves, and how long and frequent are they on your road?
4. Give size, weight (including tender), and tractive power of each class of engine on your road. Let the tractive power be determined from work done.
5. Give weights of each class of cars (four and eight-wheeled), and the loads carried by each.
6. What is the relative proportion of income from your passenger and freight traffic?
7. In what does the bulk of your freight traffic consist?
8. Give cost of repairs of engines and cars per mile.
9. From your experience, which is the best gauge, narrow or ordinary (4 ft. 8½ in.)?

W. S. HUDSON, Rogers' Locomotive Works,
N. H. SPRAGUE, Porter, Bell & Co.,
H. G. BROOKS, Brooks Locomotive Works,
Committee.

Please address replies to W. S. Hudson, Rogers Locomotive Works, Paterson, N. J.

LUBRICANTS FOR LOCOMOTIVES.

Please answer this circular on or before March 1, 1875.

DEAR SIR: The undersigned Committee of American Railway Master Mechanics' Association for the present year upon "Lubricants for Locomotives," respectfully solicit answers to the following questions, and any additional data you can give upon Lubrication:

1. What is in your experience the best lubricant for locomotive valves and cylinders?
2. What is used on your road for them—whether by hand or self-feeder, or from the cab by a tube?
3. Which method gives best results?
4. *What is your average of miles run per quart, or other measure?*
5. Does the character of the water used in boiler effect the miles run per quart of lubricant? If so, give data.
6. What is in your experience the best lubricant for locomotive guides, journals, and other bearings?
7. What is used for them on your road, and whether applied by hand or self-feeder?
8. *Give average of miles run per quart.* If not kept separate from cylinder lubricant, which it should be, give all together; but it *must not* include illuminating oils for lamps or headlights.
9. Have you tried any of the new systems by which the journals are kept bathed in oil in a tight box to exclude dirt? Give record of miles run per quart by such appliances. Can such methods be successfully applied to locomotive and tender journals?
10. *Give us any data or record of miles run per quart* of coal oil, paraffine, or any mixture of them; or with best quality of plumbago mixed with good oil or tallow. Or any preparation of mercury alone or mixed. Or any other new preparation for lubricating. Give record of any experiments or trials with them, showing *miles run per quart of each.*
11. State general condition of your engines and track; grades of road, and whether long distances are run down grade without steam; what ballast, and whether rail joints are laid opposite or alternate?

Any recent data of car journals—miles run per quart by car or journal with different lubricants—would be valuable.

You are earnestly requested to send with your answer on or before the 1st of March next, 1875, a record of the *miles run per quart;* or, if preferred, the quantity used per 100 miles run of the lubricants in use up to that date. Also to lose no opportunity of careful trials, giving results in *miles run per quart*, with the view of comparing their merits. Your Committee suggests that if the data could be kept in the *same manner* by all roads it would greatly facilitate comparing and tabulating them. Such data as you will contribute in answering the above questions, coming from so many different roads and condensed into a convenient table, will enable your Committee to furnish a valuable item of *reliable* information for the next report of our Association.

Very respectfully,

H. D. GARRETT, Pennsylvania;
EDWIN GARFIELD, Hartford, Providence & Fishkill;
F. B. MILES, Philadelphia, Chairman.
} Committee.

Please address replies to F. B. Miles, Twenty-fourth and Wood streets, Philadelphia, Pa.